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HINDU PHILOSOPHERS ON EVOLUTION

BY

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APPASAHEB PATWARDHAN,

the enlightened and progressive ruler of

JAMKHANDI.

FOREWORD



Dr. Bal Krishna, Principal of the Rajaram College in the State of Kolhapur, has already won reputation by his works on politics, economics and history, in which he has rendered available to the general public the fruit of much careful study and judicious interpretation. His book on the *Commercial Relations between India and England* (1600-1757), presents a comprehensive study of the beginnings and expansion of British Commerce with the East. His *Indian Constitution* has summary of the problems affecting the Indian government. *The Life of Shahji* and *History of Shivaji* have admittedly substantial merit both of scholarship and power of exposition.

In his present work, Dr. Bal Krishna has taken up a subject which has already in part been touched on by Dr. B. Seal in his interesting and provocative *Positive Sciences of the Ancient Hindus.* He has studied the ideas of Hindu philosophers on evolution in many phases, cosmic, vegetal, animal, in the fields of morals, economics, and politics. This is a side of the intellectual activity of India which is apt to be neglected in the western world; it occupies but scant space in the standard histories of Indian philosophy, and it is excellent that we should be reminded that Indian thinkers could deal with mundane matters which are far more intelligible to us than are the higher flights of their researches into epistemology and ontology. Dr. Bal Krishna has most wisely dealt with his

subjects in most effective manner by comparison of Indian views with those of Greek thinkers and of modern scientists. The result is a work of great interest and value. There is no doubt much in it which is open to discussion and correction. In my *Religion and Philosophy of the Vedas* I have expressed opinions on various matters dealt with in this work which do not accord with those of the author. But progress in the interpretation of Indian philosophy can only be obtained by the comparison of conflicting views, and all those who are interested in Indian philosophy, and in bringing east and west into closer comprehension of each other, will find both pleasure and profit in a study of this work.

The University of Edinburgh.
April, 1934.

A. Berriedale Keith.

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HINDU PHILOSOPHERS
ON
EVOLUTION

"To any one who studies the signs of the times, the emergence of the philosophy of evolution, in the attitude of claimant to the throne of the world of thought, from the limbo of hated and, as many hoped, forgotten things, is the most portentous event of the nineteenth century."

—*T. H. Huxley.*

"When we read with attention the poetical and philosophical monuments of the East, above all, those of India which are beginning to spread in Europe, we discover there many a truth, and truths so profound, and which make such a contrast with the meanness of the results at which the European genius has sometimes stopped, that we are constrained to bend the knee before the philosophy of the East, and to see in this cradle of the human race, the native land of the highest philosophy."

—*Victor Cousin.*

"Even the loftiest philosophy of the Europeans, the idealism of reason, as it is set forth by Greek philosophers, appears, in comparison with the abundant light and vigour of Oriental idealism, like a feeble Promethean spark in the full flood of heavenly glory of the noonday sun—faltering and feeble, and ever ready to be extinguished."

—*Friederich Schlegel.*

HINDU PHILOSOPHERS
ON
EVOLUTION

CHAPTER I

Back to India

1. Growth of Indian Philosophy

Since the advent of the civilized man on this planet the problem of the creation of the universe seems to have been perpetually stirring the heart of humanity. The Aryan Manu*, the Egyptian Minos, the Jewish Moses, and the German Mannus are credited to have reflected in their minds upon the nature of this world. Ever since those times which we love to recall and record, but which are nevertheless enshrouded in the pall of oblivion, this subject has not lost its interest, mystery, and importance. None can deny that, even at the present moment, the origin and the development of this world form the greatest, the vastest and the most complicated of all the cosmic problems. The question forms one of the hardest nuts which the Herculean hammer of the Western sciences tried hard to crack, but which have not yet been cracked. A great attempt has indeed been made to remove the veil of mystery. European philosophers and scientists have far advanced into the mysterious land and opened up

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* From '*Man,*' to think, and '*Manas,*' mind, whence *Manushya,* a rational being.

a panorama of charming vistas before the once deluded and misguided mankind. A systematised doctrine of evolution is to-day regarded as the greatest discovery in the world of thought, and it is undoubtedly the *summum bonum* of Western research, culture and perseverance.

Of course, cosmogony and cosmology were in very early days interlinked, nay, interwoven with fable, myth, theology and philosophy. Experimental science had not begun to reduce the charmed sphere of speculative imagination to the cold and calculating logic of facts. Yet even these flights of fancy are valuable for tracing the history of the human mind in discovering and developing the doctrines of the cosmic, social or statal evolution. Philosophy alone has not borne the burden, but at some unknown time it has transferred, in part, the weight of the problems to the shoulders of physical sciences. Indian chronology eludes our grasp. At every point we have to grope in the dark night of time, and still we cannot, with certainty, trace the beginnings of Indian science and medicine. During the post-Upanishadic period, if not earlier, medical literature made advances in India. It throws much light on some problems of organic evolution. Thus the twin sisters of philosophy and science have worked together to spin out the Indian theories of evolution. The Hindu mind in this post-Upanishadic age was not merely confined to the realm of thought. Observation, experiment, nature-study, collection of data and inductive reasoning were not neglected, though the deductive philosophy still predominated over the inductive and historical conclusions.

2. INDIAN COSMOLOGY

The Hindu philosophers speculate first upon the primordial state of matter, then on the order of cosmic evolution, and subsequently proceed to search for the ultimate and efficient cause of the genesis as well as of the continuance of the evolutionary process. They do not pursue, as has been remarked before, their studies into the mysteries of heaven and earth with that wealth of detail which the various sciences of to-day have revealed to the mind of man. The scientific problems of the evolution and formation of the various members of our solar and stellar systems do not seem to be discussed by the Hindu savants in the works handed down to us. Theirs might be called the age of metaphysical speculation and not of physical sciences. Still their theories are worth studying. Even these limited studies are important not only historically and philosophically, but scientifically too. These speculations were probably the earliest attempts in the history of mankind and were, consequently, to some extent, the inspiring cause of the philosophies of Egypt, Greece and even of modern Europe.

3. CULTURAL INFLUENCE OF INDIA ON GREECE

The speculations of the Vedic and Upanishadic writers are antecedent to all attempts of the Greek mind to dive deep into the mysteries of the world around. According to some Indian scholars, the Vedas faithfully enshrine the thoughts expressed by sages in the dim and distant dawn of human history. If we deny a very hoary past to the early Hindu literature, this much is certain that the thoughts on the eternal riddles of the

world were agitating the Indian mind at least one thousand years before Christ. The commercial intercourse between Persia, Assyria, Egypt, Phœnicia and India has been fully established to have existed from that period. The similarity of Zoroastrianism to the Atharvan religion of the Indians, the worship of the four Vedic gods—such as Agni, Mitra, Indra, Asvins in Assyria, and the Greek tradition of the travel of Thales, Pythagoras, Empedocles, Anaxagoras, Democritus and other philosophers into the Oriental countries, and of their acquaintance with Arabs, Chaldeans, Hebrews, Galatians, and Indians, in a word, with all the inspired peoples of the East—all these should lead us to the conclusion that the Greek mind was more or less influenced by Indian philosophy. *

4. INDIAN ROOTS OF PYTHAGOREANISM

Further, the close similarity of Pythagoreanism

* Cf. 1. L. Von Schroeder's views in his "Pythagoras und die Inder." 2. Pythagoras by Eduara Scheure. Eng- Trans. published by Rider and Co., London. 3. A History of Greek Philosophy by M. P. Nilsson. 4. Colebrooke's Misc., vol. i, pp. 436-37. 5. B. St. Hilaire—Premier Memoire sur le Sankhya.

It has been recorded in Frag. XLIII of M'Crindle's Ancient India that philosophy, then, with all its blessed advantages to man flourished long ages ago among the barbarians, diffusing its light among the Gentiles, and eventually penetrated into Greece. Its hierophants were the prophets among the Egyptians, the Chaldeans among the Assyrians, the Druids among the Gauls, the Sarmaneans who were the philosophers of the Baktrians and the Kets, the Magi among the Persians, who, as you know, announced beforehand the birth of the Saviour, being led by a star till they arrived in the land of Judæa, and among the Indians, the Gymnosophists, and other philosophers of barbarous nations. P. 104.

with the Hindu philosophy in the worship of God as Tatragamaton ; the doctrines of five elements, the immortality and transmigration of souls, the tripartite soul, the communion with God, the miraculous powers of the soul, and of the esoteric circle of the initiated ; the belief of Pythagoreans in periodic cycles and the kinship of all living creatures ; their love of mysticism, asceticism and spiritualism ; their pantheistic tendencies ; their belief in magic ; abstinence from animal diet except when the animals were sacrificed to the gods ; the regular performance of Homa ; the Pythagorean theorem in particular, and, in general, mathematics, medicine and music, these analogies should lead one to the same conclusion.

Hence Dr. Garbe positively asserts that there seems to be no doubt about the dependence of Pythagoras upon Indian philosophy and science ; and all the more so, as the Greeks themselves considered his doctrine as foreign. [1]

5. ORPHIC AND INDIAN FAITHS

Again, the cult of Orphicism with its Hindu doctrines of ecstasy, asceticism, soul-culture, and abstention from animal food, its systems of purifications and sacraments for the redemption of the soul, its belief in a written revelation, its organisation of initiated "Communities" or religious fraternities, its faith in the happier lot of the purified and the initiated, and lastly, its creed of the "wheel of birth," of the transmigration of souls or the reincarnation, rather imprisonment, of souls in animal and vegetable forms—these facts show

1. The Philosophy of Ancient India. P. 39.

at least some influence of Indian philosophy on the Greek mind.[1]

How this unrecognised but vital influence permeated all later thought, has been brought out by Mr. Burnet who has truly remarked that "the Orphic religion was mainly the faith of obscure people. We do not know the names of its preachers and missionaries........In this way Orphicism has profoundly affected all subsequent religions and philosophies, and not least those which seem, at first sight, to be furthest removed from it."[2]

6. SIMILAR SYSTEMS OF INDIAN AND GREEK PHILOSOPHY

The Greek theories of pantheism, hedonism, mysticism are profoundly similar to those enunciated in India. The identity of divine pantheons, of religious beliefs and practices, and especially, of languages is no less perplexing. The Indian and Greek systems of philosophy built upon these bases have remarkable resemblance. Sometimes they are exact reflexions of each other.

The teachings of Xenophanes, Parmenides and other Eleatics seem to be parodies of the Upanishadic verses.

The views of Heraclitus, Anaximander, Empedocles, Democritus, Epicurus, Plato and Neo-Platonists, present many striking analogies with the Sànkhyan doctrine, as will be seen later on.

Lastly, in Indian philosophy as afterwards in the Greek, air, fire, water, ether, night, soul, force, and

1. Prolegomena to the Study of Greek Religion by Jane Harrison, Chapters 9—12.
2. Burnet's Greek Philosophy, Part I, p. 32.

mind were severally accepted as primordial Principia out of which the world was thought to have been evolved. Hence in the opinion of Dr. Garbe, it is indeed impossible to doubt Indian influence upon the doctrines of Gnostics and Neo-Platonists.

Many of us are not still prepared to subscribe to the pregnant remarks of Chamberlain on the vital influence of Indian thought and culture on those of Greece :—

7. GREEK PHILOSOPHY NOT AN AUTOCHTHON

"That Indian thought has exercised an influence of quite a determinative character upon Greek philosophy is now a settled fact; our Hellenists and philosophers have, it is true, long combated this with the violent obstinacy of prejudiced scholars; everything was supposed to have originated in Hellas *as autochthon*; at most the Egyptians and the Semites were allowed to have exercised a moulding influence—whereby philosophy would in truth have had little to gain; the more modern Indologists, however, have confirmed the conjectures of the oldest, particularly of that genius, Sir William Jones."

It is a pity that in spite of the numerous similarities discerned in the mental and moral evolution of the Indian and Greek Aryans, their unity and inter-dependence should be constantly denied. Even in the face of a formidable list of analogous Indo-Greek speculations, the evolution of the Greeks is treated as an unique phenomenon divinely isolated from all the external influences. The theory of the diffusion of culture is religiously

discarded in the face of the accumulated evidence of the ancient and modern worlds. The dogma that the Greek genius did not receive inspiration from the more ancient cultures of the Minoans, Mycenæns, Egyptians and Indians, cannot be sustained before the tribunal of history, philology and comparative philosophy. It has been truly observed by Nilsson, one of the most learned and sagacious exponents of the ancient Greek life and thought, that " for the pure, the unmixed offspring of the Aryan intellect we must look elsewhere than to Greece, perhaps to the less varied, the less artistic, the less beautiful literature of ancient India and the Scandinavian North. " *

8. HINDU DISCOVERIES

The Hindus were the earliest precursors of the European scientists and philosophers in anticipating and formulating important theories. The list of such discoveries, bearing upon the evolutionary doctrine alone, will show that their scientific contributions were not insignificant.

1. The Atomic Theory.
2. Ether as the *prima materia.*
3. The Ether Theory of Light.
4. The Law of Evolution.
5. Spontaneous Evolution of the Cosmos.
6. The Law of *Nihil ex nihilo.*
7. Nebular Theory.
8. Emanation Theory.
9. The Law of the Constancy of Matter.

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* A History of Greek Religion. Cf. L. R. Farnell's Higher Aspects of Greek Religion '; Works of Sir W. Jones, I. Pp. 20, 125, 127, 360, 361.

10. The Law of the Conservation of Energy.
11. The Theory of the Dematerialization of Matter.
12. The Theory of the Unification of Energy.
13. The doctrine of the unity and convertibility of human energy and natural forces.
14. The Procreatrix of the Cosmos is energy and not matter.
15. Matter is a form of energy.
16. The Theory of Abiogenesis.
17. The Theory of Biogenesis.
18. Soul—a physiological product
19. Mind—a material evolution.
20. Consciousness—a material evolution.
21. Sense organs are phenomenal.
22. Physical origin of life.
23. The Theory of Epigenesis.
24. The theory of cosmozoa.
25. Corpuscular theory.
26. Life and Consciousness in plants.
27. Fertilization of plants by insects.
28. Circulation of the blood.
29. Circulation of the sap in trees.
30. Cell Theory.
31. The theory of the control of sex
32. Laws of Eugenics.
33. Laws of Heredity.
34. Effects of exogamy and endogamy.
35. Physical interpretation of character.
36. Relation of food and mind.
37. Theories of the origin of colour.
38. Factors of the variation of species.
39. Theory of progressive social evolution.

40. Theory of social retrogression.
41. The law of the survival of the fittest.
42. The state as a necessary evil.
43. The state as a necessary good.
44. The state, a divine institution.
45. The Hobbesian theory of warfare.
46. Theory of Social Contract.

9. PARALLELISM IN THOUGHT

To sum up, there are striking parallelisms in all the spheres of philosophic thought of the Indians and Hellenes. This profound similarity of Greek and Indian speculations on cosmogony and other problems of life, should lead us to the conclusion of their mutual influence.

No positive proofs of the process of infiltration and inter-penetration are yet available.

Even twenty-two centuries before our time, Greek writers like Philo the Pythagorean, Aristoboulos the Peripatetic, and Megasthenes noticed the earlier birth of Indian philosophy, but did not acknowledge any influence of the same on their Greek thought. Three different works quote Megasthenes on the point:—

" All that has been said regarding nature by the ancients (Greeks) is asserted also by philosophers out of Greece, on the one part in India by the Brachmanes, and on the other in Syria by the people called the Jews. " *

10. VALUE OF INDIAN PHILOSOPHY TO THE WEST

So much is certain that several centuries prior to

*M'Crindle's Ancient India, p. 103.

the dawn of philosophic speculation in Greece and millenniums before the scientific discoveries of the modern age, Indian thinkers anticipated a few very important theories and truths. Consequently, we must accord a proper place to Indian philosophers in the history of philosophy and science. 'Back to Aristotle and Plato' has been the oft-repeated cry. The Egyptologists and Assyriologists have now claimed that the roots of Western philosophy and culture are to be sought on the banks of the Nile and the Euphrates. To arrive at the real truth, the West will have to travel farther to the banks of the Indus and the Ganges. The time should not be far off when, in order to have a vision of the dawn of philosophy and science, the cry of 'Back to India' should become popular in the West.

CHAPTER II

The Primordial Principle in Indian and Greek Philosophies

"Science does not deal with origins, not ultimate origins Even Poetry has to close its eyes when confronted with ultimate origins. It can only murmur the words 'In the beginning God.'" —*Sir Oliver Lodge.*[1]

1. Intellectual Revolt

The earliest Hindu philosophers of the Upanishadic period discarded the philological platitudes of the ancient Brahmanic literature on the one hand, and shunned the jungles of legends, superstitions and fairy tales of the Puranas on the other. They raised the banner of revolt against the crushing formalities of numerous sacrifices wherein spirit was being constantly and persistently sacrificed to mere forms and formulas. In their quest for a monistic theory of the universe, the Hindu sages crossed these mountains of myths, and beheld such visions of truth as have excited the wonder and admiration of many succeeding generations.

2. Quest after an Eternal Substratum

The Upanishads were written in the age of intellectual freedom. Brahmans, Khastriyas and even low caste people challenged the current beliefs about the beginnings of things. Poets, priests, prophets vied with

1. Evolution and Creation, pp. 38, 45.

each other in digging deep the unexplored regions of speculative thought on the ultimate origin of things without the assumption of a supernatural, creative or divine agency. It was not in Ionia but in India that the idea of a slow and progressive evolution which has become the basis of many subsequent scientific researches, first got wide currency.

The seers of India appear to have accepted two hypotheses as far back as three thousand years ago, if not earlier, that

(1) the cosmos arose out of something and not out of nothing, or that nothing comes into being out of nothing and something cannot come out of nothing; and that

(2) the primary and permanent substance which undergoes myriads of changes in the visible world, does not lose its identity and unity in this constant flux.

The Shvetàshvatara Upanishad opens with some pregnant questions which have remained unsolved riddles even up to the present day. These are:—"What is the (First) cause? Is it Brahman? Whence are we born? Whereby do we live? On what are we established? Overruled by whom, in pains and pleasures, do we live our various conditions?" Such problems were presented by the seekers of knowledge to the *Brahmavádins* or expounders of Brahman for solution. These seers, through their occult practices, abstract meditation, concentration and self-control, attained to a clear vision of mundane and ultra-mundane things, and thus could *intuitively* unravel the mysteries of heaven and earth. But after all human knowledge

and speculation had and still have their limitations. Each philosopher may see a part of truth, but not the whole truth. Hence different schools of thought grew up in India on the origin of the cosmos, matter and soul, and each developed its own system to explain the facts of the cosmic evolution. We will have abundant occasions to study some of the principal systems of thought.

The reply to the first question of the Upanishad summarises the opinions of the various schools on the First Cause. This may be categorically represented as:

Time	Elements
Inherent Nature	Prakriti or Yoni
Necessity	Mind *
Chance	Purusha or Individual Soul
Night *	Átman or Universal Soul

3. TIME—THE FIRST CAUSE

The names of the founders of the various schools are not generally given in the Vedic, Brahmanic or Upanishadic literature, nor even in the commentaries. Teachings alone are available in the ancient books.

For instance, the Atharva Veda[1] emphasises Time as the cause of the genesis of the world in one hymn. "From time came into existence waters; from Time arose Brahma, penance and quarters. From the Time rises the sun and into the Time it disappears again. By means of the Time the wind blows and Time sustains the great earth and the extensive sky. The Time in

1. XIX. 54. Cf. Bhágavata, II. VI. 41—42; Sushruta II, p. 118. * These two are not mentioned in the Up.

days gone-by generated the Past and the Future. From Time were born the Rik hymns, and the Yajus were born from Time. Time, being desirous of giving a share to the gods, instituted Yajna. In the Time are established Gandharvas, Apsaras, and the worlds. On Time are dependent the Angiras and god Atharva."

In the above verses the word '*Kála*' has been taken in the literal sense of Time, though its real meaning here seems to be God. Several passages can be quoted where the Supreme Being has been called Kála from its undecaying, ageless, or eternal[1] character. However, if Kála is to be taken in its literal significance, it is evident that the world and all that exists in it, have emerged from and depend upon time.

The Maitri Upanishad[2] supports the Vedic teaching in an unequivocal language thus:

'From Time flow forth created things.
From Time, too, they advance to growth.
In Time, too, they do disappear.
Time is a form and formless too.
'Tis Time that cooks created things,
All things, indeed, in the Great Soul (Mahátman).
In what, however, Time is cooked······
Who knows that, he the Veda knows!
This embodied Time is the great ocean of
creatures"[3]

In several discourses of the Shánti Parva we are

1. XIX. 54. Cf. Bhagavata, II. VI. 41—42; Sushruta, II, p. 118.

2. This passage has been fully explained by the author in "Veda, the Word of God," p. 265.

3. VI. 14

repeatedly taught the doctrine of Time as the primal cause of the whole creation. A few specimens will suffice here:—

'Persons well-read in the Vedas say that Time is Brahma, He is the one creator and destroyer. Nothing else is the cause.

'All the numberless creatures which exist subject to pairs of opposites and according to their respective natures, have Time for their refuge. It is time that puts on those forms and it is Time that upholds them.'[1]

Some scholars have maintained that the idea of Time as the first principle originated among the Persians and from them it was adopted by the Orphics. It is true that in Greece Orphicism was the first cult to postulate, as the primeval stuff, this abstract principle, "Time which never grows old." The same idea is to be met with in Pherecydes. This mystical philosopher placed Zeus at the beginning of the world. Zeus meant Time or that which lives. According to the Orphic cosmogony, Time formed a silver egg in the divine Ether. From the egg proceeded the first God, Phanes, the creator of the world.[2]

We know from the unimpeachable testimony of Eudemus that the Phœnician cosmogony begins from the Time-principle. He also speaks of Chronos and To'τος as the first principles of the Magi[3]. In the Persian Avesta the "Boundless Time" is to be found

1. Eng. Trans. Pp. 335, 342, 353, 356—7, 361.

2. Cf. the emergence of Brahma from the Cosmic Egg in all Pauranik mythologies.

3. S. B. E. IV. lxxxii n., and p. 206.

as Zrvan Akarana. This has been transformed into a legendary hero in Berosus. The reader is fully aware of the profound resemblance of the ideas and language of the Avesta with those of the Atharva Veda. Hence there should not be much difficulty in identifying the sun of Indian philosophy which illuminated and quickened the thoughts in other lands. If one is not justified in asserting that such cosmogonic accounts are the distorted forms of Hindu cosmogonies transmitted to the Hellas through Persian and Assyrian sources, so much is certain that the enunciation of Time as the original cause of the cosmos was made in an unknown antiquity in India.

HISTORY OF TIME-PRINCIPLE

1. Atharva Veda	1. Persian Avesta
2. Bali, the King of the Daityas	2. Phœnician Cosmogony
3. Vyása	3. Greek Orphics
4. Maitri Upanishad	

4. NATURE AND NECESSITY.

In his psychology Spinoza taught that all things issue from and are carried on by an eternal necessity. Even God does not act for some *voluntary* purpose, for this would indicate desire. He acts only from the necessity of His nature. [1]

Among the Greek philosophers, Parmenides and particularly Empedokles are regarded as having taught

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1. Davies' Hindu Philosophy, p. 140.

chance and necessity to be the guiding principles of evolution [1].

Plato's philosophy too leads one to believe in necessity as a concomitant cause subservient to the divine [2].

The orthodox and ideological schools of India anticipated and propounded an analogous doctrine long before Parmenides and ages before Spinoza. The Aryan theists, no doubt, believe that the world owes its origin to God, but the act of creation is considered by some of them as involuntary or as His Eternal Nature—the deed having nothing in common with human actions. One philosopher in the Shvetáshvataropanishad says that the knowledge, energy and action of the Lord are inherent in His nature [3]. He cannot but be possessed of these three attributes, while these in turn work spontaneously as reflex actions. The Bhagwad-gítá fortifies the same conception in a verse wherein it is asserted that "neither agency nor objects does the Lord create for the world, nor union with the fruits of actions. It is nature (Swabháva) that acts [4]."

The Hindu materialists do not recognize any divine agency in the creative act, but matter itself is considered by them to be possessed of the creative power.

The Chárvákas who postulate the existence of only four elements of earth, water, fire and air, attribute

1. Burnet's Early Greek Philosophy, pp. 187-190.
2. Burnet's Greek Philosophy, I, p. 341.
3. VI. 8.
4. V. 14.

all phenomenality to chance and the inherent nature of things, and are therefore opponents of necessity. All modifications in the organic and inorganic worlds are produced spontaneously without assuming any supernatural motive power or the regulative destiny. This doctrine has been thus summed up by them in a couplet:

'The fire is hot, the water is cold, refreshing cool the breeze of morn:

By whom came this variety? From their own nature was it born.'[1]

Saint Panchashikha, one of the earliest and greatest expounders of the Sánkhya philosophy, gives a summary of the theories of the sceptics of his own time. They are represented to condemn the idea of eternal souls as a rank superstition and to propound that one's death is the extinction of his soul, the latter is not distinct from the body, nor does it exist after the loss of the body, and that life is consequently a spontaneous function of the organism itself. The case is reasoned out thus:

'The capacity to produce leaves, flowers, fruits, roots and bark lies in a banian seed itself. The grass and water taken by a cow produce milk and butter, these latter subtances differ in nature from that of their causes. Various substances when allowed to decompose in water for some time, produce spirituous liquors whose nature is quite different from that of the sub-

1. Cowell's Sarva-Darshan-Sangraha, p. 10. Cf. Empedocles' quarternion of the four elements: Fire, air, earth, water.

stances producing them. Likewise, from the vital seed is produced the body and its attributes, with the understanding, consciousness, mind, and other qualities. Two pieces of wood, rubbed together, beget fire. Coming in contact with the rays of the sun, the stone called *Suryakanta* begets fire. Any solid metal, heated in fire, dries up water when coming into contact with it. Likewise, the material body produces the mind and its attributes of perception, memory, imagination, etc. As the load-stone moves iron, likewise the senses are controlled by the mind."[1]

The doctrine of necessity is indeed intimately connected with that of nature. All transformations, if they are purely automatic, cannot but be necessary. Matter *must* undergo evolutionary and devolutionary changes, because it has no escape from the necessity of its nature. Changes are inhered in matter, though they are not pre-determined by any personal or impersonal agent.

(i) Prahlàda, the King of the Daityas in his discourse with Indra, is represented as teaching the doctrine of spontaneous activity inherent in the cosmos. "All kinds of entities and non-entities come into being or cease on account of their own nature. No kind of personal exertion is necessary for their production. In the absence of personal exertion, it is clear that no personal agent exists for the production of all this that we perceive."[2]

(ii) Even Bhishma, the grand old philosopher-

1. Shánti Parva, 218. 29.
2. " 222, 15-16.

warrior of the epic fame, taught that the five ingredients composing the corpus exist together by force of their own nature and become separated again under the impulse of their own nature.[1]

(iii) This materialistic view has been beautifully expressed by his contemporary Saint Yájnavalkya. Nature, independently and of her own accord, as if for sport, O King, produces, by undergoing changes herself, thousands and thousands of combinations of her original qualities. As men can light thousands of lamps from a single lamp, similarly Nature by change multiplies into thousands of existent objects the three qualities of Purusha."[2]

(iv) Even the Brihad. Upanishad[3] refers to the atheistic doctrine of Chárváka. According to it our soul is produced through the combination of four elements, just as an intoxicant is generated by the mixture of rice, molasses, etc.

(v) But Saint Vyása, the preceptor of Yájnavalkya, has strongly condemned the preceding doctrine in words like these: 'That fool who, believing that all this exists by its own nature without, in sooth, an eternal foundation, satisfies by such instruction the aspirations of disciples, and defeating by his dialectical ingenuity the reasons the latter might urge to the contrary, succeeds not in acquiring any truth.

1. Shánti Parva, 219. 7.

2. ,, 314. 15-16.

3. IV. 5. 13. Cf. Charak Samhita, Sutra Sthana, Chap. XI, Rámáyana, Ayodhyákánda, 108. 17.

They who firmly believe that all cause is due to the *nature* of things, cannot acquire any truth by even listening to learned men or the Rishis.

Those little-witted men who stop (in their speculations), having adopted either of these doctrines, those men who regard *nature as the cause*, never succeed in acquiring any benefit for themselves.

This belief in Nature (as the producing and the sustaining cause) originating as it does from a mind labouring under the influence of error, causes the destruction of the person who cherishes it. Hear of the truth regarding these two doctrines which hold (1) *that things exist by their own Nature,* and (2) *that they flow spontaneously from others that are different from, and that precede, them.*"[1]

(vi) Still Saints like Parásharа subscribe to the same Chárváka view : "But in the matter of creation, he was an instrument merely as the force resident in the things created, was the principal cause. Being ripe for development, objects at the time of creation desiderate nothing more. O foremost of those practising austerities, *objects attain their objectivity by virtue of their inherent force.*"[2]

For the present these testimonies will suffice, as the point is to be further elucidated later on. It is now abundantly clear that chance, necessity and nature were postulated as prime causes of the mudane

1. Shánti Parva, 237. 3-6.

2. Vishnu Purána, Eng. pp. 18-19. Cf. Shánti Parva, 287. 4-5.

evolution long before the times of Plato, Empedocles and Parmenides. India had the unique privilege of producing a host of philosophers who scientifically approached the problems of the origin of the cosmos at a time when the rest of the world was enveloped with intellectual darkness. Three millenniums before Spencer, Hæckel, Huxley, Tyndall and other modern apostles of the theory of spontaneous evolution, the Indian thinkers propagated this doctrine, firmly laid the corner-stone of scientific research, and created a living fountain of an animating force in the conflict with the theistic doctrines of creation.

EXPONENTS OF SPONTANEOUS EVOLUTION

INDIA.	*GREECE.*
1. Prahláda	1. Parmenides
2. Paráshara	2. Empedocles
3. Panchashika	3. Plato
4. Vyása	
5. Bhíshma	
6. Brihad. Upanishad	
7. Rámáyana	
8. Lord Krishna	
9. Yájnavalkya	
10. Chárvákas	
11. Jains and Budhists	

5. NIGHT AS THE PRIMARY BEING.

In one cosmogonic theory none of the five elements found favour, but the strange conception of personified Night was taken as the starting point of the Universe For instance, in Greece Pherecydes of Scyros (about

540 B. C.) postulated Night to be the supreme primary being.

Professor Gomperz writes that the conception is interesting as reminding us of the Homeric verse which relates how Zeus was refrained from acting contrary to Night, and where we see the faint gleam of the belief that Night was superior even to the father of the gods. The Maorists too recognize "a first mother, Night," and the doctrine comes to frequent expression in the cosmogony of the Greeks themselves. It plays the chief part in the legendary Musæus no less than in Epimenides the seer, in Acusilaus the febulist, as well as in a fourth writer whose name is unknown.[1]

It is strange that the Indian speculation too presents parallels on the point. In one of the Rigvedic hymns, Saint Prajápati propounds that in the state of dissolution nothing exists but blinding Darkness covering the universe which is one endless expanse of water. When that water exists like Brahma without a second, it is neither day nor night, neither existence nor non-existence, neither manifest nor unmanifest. The hymn declares that 'day was not, night was not, aught was not, naught was not, universal Tamas alone existed in the beginning.' The Veda uses the word '*Tamas*', which is generally interpreted as darkness, but it also means Night. The Pauránic literature sometimes uses the word *Rajani*. This night is described as the first form of the Universe or the Night of Náráyana of the Universal form.[2] Thus in this celebrated cosmic hymn of

1. Greek Thinkers, I, p. 91.
2. Shánti Parva. 343, 5-9.

the Rigveda, Night has been declared by the Saint Prajápati to be the Procreatrix of the cosmos.[1]

Manu has expressed the same idea in other words. '*This universe existed in the form of darkness*, unperceived, destitute of distinctive marks, unattainable by reasoning, unknowable, wholly immersed, as it were, *in deep sleep*.'[2]

There is not a tinge of superstition in the theory propounded by Prajápati and supported by Manu, but later on in the Pauránik mythology the night of dissolution was looked upon as a 'being' and she was conceived to have given birth to the creative Purusha, Hari. It was some such version which might have captured the imagination of the people outside India.

NIGHT AS PROCREATRIX

INDIA.	*GREECE.*
Prajápati in the Rigveda	Homer
Manu	Musæus
Shatapatha Bráhmana	Epimenides
Taittiríya Bràhmana	Acusilaus
Mahábhárata	Pherecydes
Puránas	

6. EVOLUTION FROM ELEMENTS

From the times of Homer and Hesiod many Greek philosophers postulated a quaternion or a triad of

1. Rigveda, X. 129. 3.

2. Manu, I. 5. Cf. Shata. Brah. XI. I. 6. 1.; Tait. Brah. II. 8-9. 4.

'Elements' as the primary stuff out of which the world evolved. The idea was fully developed and systematised by Empedocles and Aristotle, while other philosophers generally recognised only some one element out of the quaternion of Fire, Air, Water, and Earth as the primitive substance. These four ingredients were called 'elements' in the Milesian cosmology, but surely not in the sense given to the word in modern chemistry. The Sanskrit word for the so-called 'element' is Bhúta, i. e., what has become ; what has actually come to exist ; what has become a matter of fact, that is, the one which was latent as existence (Bhù), has become patent. The potential, formless, unmanifest matter adopts forms and thus becomes manifest, though it is still in its elementary state. The full significance of the word, as it developed during ages of speculation and discussion, will be discussed later on.

The Hindus from the advent of the Sánkhya school at least, if not earlier, postulate the existence of five Bhútas and not of four or three as in the Greek philosophy. The idea of a correlated group of five Bhútas must have taken a long time to evolve and mature. The early Upanishads and the Vedas do not show any evidence of the existence of such a pentad. Now one, now another ingredient was taken to be the original stuff of the world. But even these were considered as things, effects, products of the original matter when it had passed through several stages of becoming. In one sense these are correctly considered

to form the back-ground of the world. The whole manifest existence can be traced to these *determinate, if not manifest*, Bhútas as the first stage of materiality, the pre-Bhutaic stage showing no signs of visibility. The theories of the cosmic evolution from the elements have their counterparts in the Greek philosophy too, but there are some essential differences in the Greek and Indian speculations on evolution from the elements. The points of resemblance and difference will be clear in the detailed discussion. At the outset it should be remembered that the usual order of these elements in the Indian theories is supposed to be from the subtlest to the grossest as ether, air, fire, water and earth. In Greek philosophy fire comes between ether and air. But in rare cases there are different orders proposed in Indian philosophy too. For instance, according to Saint Bhrigu, ether, water, wind, fire and earth form the order of the evolution of Bhútas. Other differences will be seen as we proceed. Here, however, the elements will be taken in their universally accepted order.

7. ETHER AS COSMIC PRINCIPLE.

It is to the lasting credit of the Indian philosophers that they, in a dim and distant past, had the remarkable genius to discover and anticipate a latest research of modern science. They discarded Earth, Water, Fire and Air as the ultimate causes of the material diversity and in their speculative flights their intuition led them to postulate 'Ether' as the subtlest, homogeneous, primary, and universal substratum of this bewildering

heterogeneity. Chemistry now no longer pins its faith to the eternality and plurality of the ninety odd elements, though for more than 150 years it emphatically taught the conservation of matter and the persistence of every atom. The doctrines of the eternality, unchangeableness, plurality of atoms have been finally overthrown. The unity of matter has been established beyond doubt. Atoms differ from each other only on account of different numbers and collocations of protons and electrons, the atoms of positive and negative electricity. Thus the ninety-two elemets are not intrinsically different from one another, but differ in the numbers, proportions and arrangements of their constituent electric charges. Researches in the transmutation of elements are proving the unity of the stuff which, by successive tranformations, manifested this multitudinous diversity. The primordial stuff is nothing but 'Ether'—'an intangible something which goes by various names: its ordinary name being radiation, its popular name being light'. It will be seen from the etymology of *Akásha*, the Sanskrit equivalent of ether, that radiation, light, ether are identical terms. This word 'Ákásha' is conspicuous by its absence in the four Vedas. It is evident that the conception of luminiferous ether had its origin in the post-Vedic period.

The existence of ether is argued by Vàchaspati in words like these :—"Further the absence of obstruction is an indication of Àkàsha. If there were no Àkàsha, the forms would be in such close contact with one another that even a needle-point would not find room between them. Everything would thus be obstructed

by everything. It cannot be said that the absence of obstruction is the result only of the non-existence of things possessed of form, because non-existence depends upon existence, inasmuch as there can be no cessation of existence in the absence of existence. Further the power of consciousness cannot be its substratum, because it is immutable and cannot, therefore be limited. And further space and time, etc., are not different from the Prithvi and other substances. Therefore such a kind of change can only be of the Àkásha. Thus all is plain." [1].

Now compare these thoughts with those expressed by Sir Oliver Lodge. "The term ether therefore connotes a genuine entity filling all space without any breaks or cavity anywhere, the one omnipresent physical reality, of which there is a growing tendency to perceive that everything in the material universe consists; matter itself being in all probability one of its modifictions."

There are many passages in the Upanishads wherein Ether has been mentioned as the root-cause of creation, but here a few examples will suffice for illustration :—

(i) The philosopher, Atidhanvà, son of Shaunaka, in his discourse with Udarsàndilya, maintained the ultimate refuge of all things to be Ákásha. It is so called because it is the medium through which light shines, or becasue all the heavenly lights like the sun

1. S. B. H. IV, p. 241.

and others shine through it[1]. It is the subtle and ethereal fluid pervading the whole universe. It is one of the five Bhútas of the Sánkhyas and one of the nine substances of the Vaiseshikas.

The important attributes of Ether in the Shástras are identical with those ascribed to it by modern science.

It has been described as

(a) eternal and formless ;

(b) one, but which becomes many, as all matter is one of its modifications ;

(c) without name and form ;

(d) and omnipresent Brahma is stated to be eternal and ubiquitous like the ether—

(ii) In a metaphysical discourse between Saint Praváhana and Shalávat, the latter asks "What is the goal (Gati) of this world or to what does this world go ?" To this question philosopher Praváhana replied, "The Ether ; all beings verily proceed from the ether and merge into the ether. The ether alone is greater than these ; the ether is the final goal." [2]

(iii) In another discourse it has been declared by Aruna that Brahma is verily Ákásha which surrounds a man ; it is the same which is within the heart of a man. [3] It is omnipresent and eternal.

(iv) Elsewhere it is maintained that the ether is

1. A Samantát Káshante Dípyante Súryyadao Yatra.
2. Chh. Up., I. 9, 1.
3. „ „ III. 12, 7-9.

the prime cause of all objects possessing a name and a form. The cosmos is its work and in it do the elements submerge.

(v) Another Hindu philosopher known as the son of Kauravyayáni, is reported to have asserted that Brahma is the ether, the ether is primeval, the ether is the source of Air.[1] Thus the original stuff—ether has even been identified with Brahman himself. In another passage also Ether has been identified with Brahma. "One should reverence Ether as Brahma."

(vi) The pre-evolute was perfectly still and dull.[2] Brahma existed, but he too was in contemplation. The souls too were lying with dormant energy. The first principium was nothing but ether :—

"When there was neither aught not naught, when darkness was covering darkness, what existed then? Then Ákásha existed without motion," that is, without that energy which characterizes matter in its combinations and disintegrations.

(vii) Manu Smriti[3] has to tell the same tale of that chaos, though the nature of the ultimate *Est* has not been explained in this verse.

"In the beginning, this universe was enshrouded in darkness. It was neither definable nor discoverable by reason, neither did it possess any physical signs, nor was it therefore perceptible by the senses."

The nature of subtle *Est* has been explained here in

1. Brih. Up., V. 1.
2. Chh. Up., III. 18, 1.
3. I. 5.

negatives only. The preceding Upanishadic passages are important in the speculative history of the world, as these postulate Ether as the world-ground in the same way as did the scientific Vaiseshikas afterwards.

(viii) The climax of the true conception of Ether is reached in the last discourse (viii-14) of the Chhándogya Upanishad. It is maintained that 'the Ether is verily made of name and form. That which is beyond this couple of name and form is Brahma. It is immortal'. Ether has manifestly been taken in the sense of matter which, though very subtle, has yet form and name. This conception of material ether was taken up and developed by other systems. Such ideas have formed the foundation of the Ether of the Sánkhyas and Vaiseshikas in later ages.

In some passages Ákásha seems to have been taken in the Cartesian sense of the word space. Descartes identified original matter with space which, according to him, is the only form of substance and all existing things are but affections of space. The same idea forms one of the ultimate foundations of the system of Spinoza. But just as in later times Newton recognised the ideas of time and space as distinct from the idea of the material system whose relations these concepts served to co-ordinate, so in ancient India the Sánkhyas and Vaiseshikas postulated Time and Space as categories distinct from the five elements. They also discovered the two concepts of space as a mere geometrical abstraction and as a substantial[1] reality filling all space. For differentiating

1. In the Vaiseshika Philosophy ether, like Space and

between space and ether, we may well point out to the aphorism of the Kanàda Sútras: "*Space*, Time and *Ether* are inactive, because of their difference from that which possesses activity." (V. 2. 21; I. 5.)

EXPOUNDERS OF ETHER PRINCIPLE

INDIA.	*GREECE.*
Atidhanva	Philolaus
Praváhana	Plato and his successors
Aruna	
Kauravyayániputra	
Manu	
Un-named philosopher in the Chhándogya Upanishad	

8. AIR—THE PRIMEVAL CAUSE.

According to Anaximenes of Miletos, *air* was the beginning of things. All beings were produced from it, and all things were resolved again into it. Like Anaximenes, Diogenes of Apollonia in Crete, an eminent natural philosopher regarded air as the primary, infinite and universal substance out of which the world was evolved. He made an advance upon his predecessors by endowing the air with the attributes of *Nous*, as originally conceived by Anaxagoras. Thus Diogenes was the earliest propounder of monism and hylozoism with a tendency towards materialism.

Anaximenes taught that from Air 'the things that are, and have been, and shall be, the Gods and things

Time, is proved to be one, eternal and infinite. It is described as a continuous space-filling plenum pervading all interplenary and interstellar regions. VI. 1. 22-25.

divine, took their rise, while other things came from its offspring. Just as our soul being air, holds us together, so do breath and air encompass the whole world'[1]. The last words of Anaximenes show that he considered Air and Breath as performing the same function of preserving life in the macrocosm and the microcosm.

Several Hindu philosophers too identify human breath with the universal air, as will be clear from the passages quoted below. It should be further remembered that the 'Boundless Breath', according to the Pythagoreans, was void or empty. 'This is the beginning but no more than the beginning, of the conception of abstract space or extension.'[2]

So some of the Indian thinkers who preceded these great Greek philosophers, affirmed Air as the fundamental substance of all evolution.

(a) One gymnosophist Raikva, leading a life of such an extreme poverty and squalor that his body was full of itches, had won extensive fame for his philosophy. This "philosopher with the car" like his successor 'Diogenes of Apollonia' expounded to King Jànashruti that the cosmic macrocosm and the human microcosm originate from and pulsate with the same life-principle. For him Air was the original evolvent and final dissolvent of the cosmos, while its variant Prána did the same functions in human life. Thus the

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1. Early Greek Philosophy, p. 73.
2. Burnet's Greek Philosophy, I, p. 51.

identity of cosmic energy and life-energy has been distinctly taught by him in this passage :—

"The[1] air (Váyu) is verily the ultimatum (samvarga) of all. When a fire goes out, of a truth it merges into air (Váyu), when the sun doth disappear, it verily mergeth into air, so doth the moon when it setteth. When waters dry, they vanish into air: *the air verily consumeth all*". It means that all fire (sun and moon) and water which in other philosophic systems were postulated as primary and irreducible principles, were declared as secondary products and as such were absorbed into their originant air. Thus the doctrines of successive emergence and re-absorption into the original matter were being postulated in those days of yore.

(b) We read in the Chhándogya Upanishad that one philosopher, Ushasti, son of Chakra, declares: "Verily all these created objects merge into breath (Prána), and from it are they developed at the time of evolution."[2]

(c) Still another philosopher maintains that Prána (Váyu) is verily the eldest and greatest of all substances. Verily, neither speech, nor vision, nor audition, nor mind is worthy of its name. Those functions all belong to Prána. Prána precedeth all."[3]

(d) The popular belief has been beautifully and unmistakably expressed by the philosopher—King Aját-

1. Chhándogya Upanishad, IV. III. 1.
2. Ibid I. XI. 5.
3. Ibid V. I. 1, 15.

shatru, the ruler of Káshi in words like these: "What has form is different from the air and ether; this is mortal, this is finite, this is visible. The essence of what has form, what is mortal, finite and visible, is the being that heats the sun, for he is the essence of what exists."

Again, "what has no form is the air and the ether; this is immortal, this is infinite, this is beyond. The essence of what has no form, what is immortal, infinite and beyond, is the spirit who abides in this universe. This refers to the divine relation."[1]

(e) Rishi Dírghatamas seems to have discovered smoky patches in the starry heavens and reached the conclusion that the world was evolved from such a gaseous condition. The verse has been rendered thus: "I have seen a thing like the smoke of dry cow-dung from afar beyond the lower or autumnal equinox. The mighty gods were cooking the starry sky. Such were the doings of the gods in the earliest times." That is, our starry heaven was similarly developed from a nebula.[2]

The inspired seer Dhírghatamas thus divined the beginning of the world from a gaseous mass and by so doing, he partially anticipated the nebular theory formulated by Kant and developed by Laplace.

(f) The Kaushítaki Upanishad propounds that Air and Prána are the be-all and the end-all of mundane

1. Br. Up. II. 3, 2-3.
2. Rig. I. 164, 43 and Vedic Magazine. Vol. VIII. 178-182.

and divine manifestations. "There are verily the two ultimata (samvarga); Váyu among the celestial objects and life among the animate beings. All these divinities or forces, verily having entered into the breath, perish not when they die in the breath; therefrom indeed they come forth again."[1]

(g) One verse of the Atharva Veda deserves attention: 'Obeisance to the air which controls all this. That being is the Lord of all and all are established therein. Air is the Lord of all that breathes not. The past and future are established in Prána and in it every thing is established.' [2]

(h) 'Who is the one God? Breath. Breath is verily Brahma. That which is beyond.' [3]

(i) *Tat satyam saditi pránah.* That (Breath) is Satya (the true), for *Sat* is breath. Again, 'certainly I am Prána, O Rishi.'[4]

Prána is declared as identical with Brahma by Saints Kaushítaki and Paingya. "To him all deities bring offerings, though he asketh not any from them. Thus Prána is the Lord of all the senses." At another place, the same Kaushítaki Upanishad teaches that the breathing spirit is Brahma, that all the divinities, having entered into wind (Váyu), perish not when they die in the wind, therefrom they indeed come forth again.[5]

1. Kaushitaki Upanishad, Chap. II, 12, 13, Cf. Ait Br. VIII, 28.
2. Ath. XI, 4th Hymn.
3. Brih. Up. III, 9, 9.
4. Ait. Ar. II, 1, 5.
5. Ait. Ar. II, 2, 3.

The Greek philosopher Anaximenes who in the 6th century before Christ postulated air to be the primary substance, also held that it differs in different substances in virtue of its rarefaction and condensation. His explanation is thus translated by Burnet: "When it is dilated so as to be rarer, it becomes fire; while winds, on the other hand, are condensed Air. Cloud is formed from Air by felting, and this, still further condensed, becomes water. Water, condensed still more, turns to earth; and when condensed as much as it can be, to stones."[1]

Similarly, Herakleitos holding Fire to be the first element, taught that all things were produced by condensation and rarefaction.[2] Anaxagoras and Diogenes too explained the progress of the evolutionary process by the same doctrine.[3]

In India too, many philosophers have propounded solidification as the cause of the transmutation of matter. One later thinker, Vemkata also ascribed the evolution of the ubiquitous and homogeneous Prakrit into its modifications by condensation and rarefaction.[4] The whole Sánkhya and Vaiseshika doctrine of evolution is based on the same theory.

Saint Vyása has beautifully expressed this truth in these words: "Like a tortoise extending out its limbs and withdrawing them again, the great elements,

1. Early Greek Philosophy, p. 73.
2. ,, ,, ,, p. 147.
3. ,, ,, ,, p. 269, 356.
4. Dasgupta's Yoga, p. p. 10.

by abiding in innumerable small forms, go through transformations.

All this universe of mobile and immobile objects-has for its component parts these five elements. Everything, regarding creation and destruction, is referable to these five-fold elements.

These five elements are in all existent things. The Creator of all things, however, has made an unequal distribution of those elements serving different ends."

OUNDERS OF THE AIR-ELEMENT.

INDIA	*GREECE*
Pippaláda	Anaximenes
King Ajátashatru	Anaximander
Dhírghatamas	Pythagoras
Bhrigu	Diogenes
Kaushítaki	
Ushasti	
Raikva	

PROPOUNDERS OF THE DOCTRINE OF CONDENSATION.

Vyása	Anaximenes
Bhrigu	Heraaclitus
Sánkhyas	Anaxagoras
Vaiseshikas	Diogenes
Chárvákas	
Vemkata	

9. FIRE-SUBSTRATUM.

(a) In the Chhándogya Upanishad we read the opinion of Uddálaka that *Sat* or plenum alone existed in the beginning of this creation. It thought "I shall

assume many forms and create beings." *It created Fire.* That Fire created the waters. They in turn created Food representing Earth. Thus Fire, Water and Food or Earth—these three in succession came out of the self-evolving Plenum and the text makes no mention of Ether and Air in the successive emanations of the principal elements from the Plenum. But according to Shankara it is presumed that the Intelligence and not the *Sat*, first created Space or Ether, then Air and then Fire as described in the Taittiríya Upanishad.

The questionable tendency of Shankara and others to harmonise the various texts is visible here. They read all philosophers in the light of their own theories. Shankara reads his own interpretation in them and supplies things from above, if they are not to be found in certain passages. All philosophers, he thought, must move in similar speculative grooves. He allows no independence of thought to them. Thus all evolution and difference in speculations on the riddles of life have been eliminated by Shankara and a dead level of harmony and a cheap perfection in all Upanishads have been postulated by him. Such attempts have obscured, from our vision, the true historical growth of the Indian philosophy.

In the above Upanishadic passage fire, then water, and then food have been taken to be effects of the intelligent *Sat*. Fire and water are not elements. Shankara translates 'Teja' as the heat that burns, digests, gives light any is red. By 'Ápa' too ordinary water is meant. The Upanishad itself argues that wherever and whenever any body is heated or perspires, it is from heat that water

is produced. The water liked: 'I should multiply and be born.' It created cereals. No doubt is left in our minds that conscious *Sat* is said to have created living fire and this, in turn, produced conscious water which, in its turn, was the cause of cereals.

(b) There is another long but beautiful discourse reported in the Chhándogya Upanishad. In it the idea of fire as the primitive substance is developed in a näive manner. We are told that this doctrine was *for the first time* discovered by the Kshatriya King Praváhana Jaiváli, the Ruler of Panchála. No Bráhman had ever before attained to this divine secret. It was first disclosed to the Bráhman Gautama who lived as a disciple with the Pánchála King for some time. Praváhana was not the discoverer according to Shankara, but only its expounder. The esoteric doctrine was preserved and handed down among the Kshatriyas from generation to generation and they alone were its instructors. Bráhmans had no knowledge of it. For the first time it was being conveyed to them by the Pánchála Ruler.

" Since you have thus enquired, and inasmuch as *no Bráhman ever knew it before*, hence of all people in the world, the Kshatriyas alone have the right of imparting instruction on this subject."[1] In this discourse King Jaiváli declares everything to have originated from fire. " Yonder region, clouds, earth, man and woman all are verily Fire."

This theory is with startling similarity to be found in the writings of Heraclitus. Bearing in mind our

1. V. 3-8.

comments on the above passage, it will be seen that the Greek philosopher does not essentially differ from his Indian predecessor.

Heraclitus taught that all things were one and conceived the first principle of all things to be Fire. The English version of his thoughts on cosmology is given below from Burnet:—

"This world, which is the same for all, no one of gods or men has made; but it was ever, is now, and ever shall be an ever-living Fire, with measures of it kindling, and measures going out.

The transformations of Fire are, first of all, sea; and half of the sea is earth, half whirlwind.

All things are an exchange for Fire, and Fire for all things, even as wares for gold and gold for wares." [1]

It will be seen that the stages of the evolution of the cosmos according to Heraclitus are Fire Earth Water, Soul.

He taught that we are and we are not the same for two consecutive moments; 'the fire in us is perpetually becoming water, and the water earth, but as the opposite process goes on simultaneously we appear to remain the same.[1]'

This fire which is for ever kindling into flame, and passing into smoke and ashes; this restless, ever changing flux of things which never *are*, but are ever becoming; this Heraclitus proclaimed to be God or the One. This fire was impelled by irresistible desire to

1. Early Greek Philosophy, p. 134.

transform itself into some determinate existence. Thus he approved Fire to be both the moving, mingling force, and the mingled matter.

10. HYLOZOISM.

In passing, we should carefully mark the germs of Hylozoism in the doctrine of Uddálaka. It bears a very remarkable resemblance to the Heraclitusan theory. The Hindu philosopher is the predecessor of the Greek hylozoists or animators of substance whose uncrowned king Heraclitus, the Ephesian philosopher, developed the theory of animated matter. Uddálaka ascribed to matter (Sat) an extraordinary power of thought and the other material mutations of the same were endowed with consciousness too. Herein we possess the Empeoclean Hylözoism *in excelsis*.

EXPOUNDERS OF FIRE-ELEMENT

INDIA	*GREECE*
Uddálaka	Heraclitus
Praváhana Jaiváli	Hippasos
Gautama	

HYLOZOISTS

Uddálaka	Heraclitus

11. WATER—THE ORIGINAL CAUSE.

Modern Science is not opposed to the theory that life had its beginnings in water. The ancient philosophers, seeing that water is a *sine qua non* of life and susceptible of many modifications, postulated that

a subtle aspect of water must have formed the *prima-materia.*

(a) In the Brihadáranyaka Upanishad[1] the first cause of the universe has been propounded as *Water.* "In the beginning this world was just water. That water created the *Est* (Satya), Satya created Brahma. Brahma created Prajápati. And he created the gods in his turn."

It is a remarkable statement. In an unequivocal language it has been asserted that gods, Prajápati, even Brahma, nay still more, even the plenum came out of Water. This and this alone is postulated as the original and ultimate ground of the universe. Neither Brahma nor Plenum, nor even Prajápati or any other gods which are asserted by others to be the first cause, ought to be considered as such, but 'water' should be looked upon as the substratum of all things and of divine beings. Above all, even the hypothesis of God as the creator of water, has been shunted off. The primeval waters are endowed with power to evolve the phenomenal multiplicity.

(b) In the Brihajjabala Upanishad[2] it is declared that "this non-being was verily water, and full of motion like water."

This is a noteworthy theory as it hypothecates the existence of motion in the primeval matter and negatives the necessity of an external impetus as postulated in the Biblical cosmology for the beginning of evolution.

1. V. 5. 1.
2. I. 1.

(c) Then the well-known discussion of the lady philosopher, Gargi with the saint Yájnavalkya opened with the popular statement that "all this world is woven warp and woof on Water." This is said to rest on wind, that on atmosphere, that on Gandharvas, till Bramha is declared to be the final essence of all. Further than this the sage could not logically maintain his position before the searching enquiries of his lady opponent[1].

(d) The same belief of water being the fundamental reality is found stated in the Chhândogya Upanishad[2] in these words: "All these beings are merely water. *It is just water solidified*, that is this earth, that is the atmosphere, that is the sky, that is the mountains, that is gods and man, that is animals and birds, grass and trees, beasts, together with worms, flies and ants; *all these are just water solidified.*"

(e) Even Átman or Soul has been declared in the Kathopanishad to have been "born of old from the waters." He sits firm in the cavern of the heart and looks forth through beings."[3]

(f) Sage Bhrigu postulates water as the primeval stuff of the world. Bharadwaja is taught by him that the great Manasa (in his form of Brahman) created the diverse kinds of objects by the fiat of Will. For the protection of all creatures, he first created water. Water is the life of life of all creatures, and it is water which aids their growth. If there be no water, all

1. Brih. Up. III. 6. 1.
2. 7. 10. 1.
3. Kathopanishad, II. 4. 6.

creatures would perish. The whole universe is pervaded by water. Earth, mountains, clouds, and all things which have form, *should all be known as transformations of water. They have all been produced by the solidification of that element.*[1]

Again, it is affirmed that *this whole universe is made of water.* Water is the form of all embodied creatures. In that water, lives the Soul which is seen in the mind. That Soul is the Creator or Brahman who exists in all things.[2]

Thus Bhrigu believed that water by going through the process of solidification could be transformed into all these worlds.

(g) The idea of the creation of the universe from the waters abounds in the Vedas. A few verses will suffice here :—

According to Bhauvana, the seer of the verses—Vishvakarman (the Maker of the Worlds) fashions the worlds sunk in the primeval waters, and then issues forth from these waters as the primal germ that conceals all gods.[3]

Elsewhere the pre-evolution stage is thus described by another seer: 'In the beginnings there was darkness, it was enveloped in utter darkness. It was indiscernible. It was like water or sea.''[4]

In the Ṣhatapatha Bráhman it is said that Purusha-

1. Sh. Parva. 183 Chap.
2. Ibid, 187, 23.
3. Rig. X. 81, 82.
4. Rig. X. 129, 3.

Prajápati creates the waters, enters into them as an egg in order to be born from them, and issues forth from them as Brahman. [3]

Thus there are at least ten different philosophers, who like their Greek successor Thales of Miletus, had taught that the first principal of all things was water, that moisture was the origin, the starting point, the primary existence, or the ultimate material cause of all things.[4]

Thales, the first of the Seven Sages of Greece flourished at the end of the 6th century B.C. He might be called a contemporary of Gautama Buddha. Long before the rise of Budhism, cosmological questions were being discussed by the Indian[5] philosophers during the philosophic epoch of the compilation of the ancient Upanishads, and still earlier, in the Vedic times. Greek philosophy can be said to start from Thales. Thus while the theories of cosmology were just having their birth in Greece, they had been fully developed in India wherein philosophy had borne a fairly rich crop both in the seclusion of the forests and the grandeur of the royal courts.

23. BHRIGU'S NEBULAR THEORY.

In Bhrigu's discourse the origin of other elements and from them that of the earth is reasoned out in a

3. Shatap. Br. 6. 1. 1.

4. Hippo who was probably a Samian by birth, is mentioned to have taught the same doctrine in the age of Pericles.

5. This conclusion is not upset even if we believe that Homer postulated water, Okeanos, or Okeanus as the first principle.

curious manner. The passage is important from the scientific point of view :—

'Formerly there was only infinite space, motionless, and immovable. Without sun, moon, stars, and wind it seemed to be asleep. Then water originated like something darker within darkness. *Then from the pressure of water sprang wind.* As an empty vessel having no hole appears at first to have no sound, *but when filled with water, air appears and makes a great noise*, so when infinite space was filled with water, the wind arose with a great noise, passing through the water. Generated by the pressure of the ocean of water, that wind continued to flow. Occupying empty (unobstructed) space, *its motion was never stopped.*

Then *on account of the friction of wind and water*, fire endued with great power and burning energy, came into being, with flames directed upwards. That fire dissipated the darkness that had covered space.

Helped by the wind, fire combined Ether and Water. In fact combining with the wind, *fire became solidified.*

While dropping from the inter-stellar space, the liquid portion of fire being solidified again, became what is known as the Earth.'

The scientific knowledge of the seer is indeed very faulty, but his soaring genius formulated a theory which has stood the test of time. It is postulated here that the cosmos was at one time nothing but motionless ether, in course of time it was transformed into a liquid, an incandescent or ignious mass from which were evolved

various worlds. From that fiery mass a portion separated, in time it cooled down and was solidified and that is our earth. Thus a bold anticipation of the modern Nebular Theory on the origin of the earth is to be traced to Bhrigu. The poet-philosopher Tennyson has thus expressed the modern idea of the becoming of the earth in *The Princess* :—

> This world was once a fluid haze of light,
> Till toward the centre set the starry tides,
> And eddied into suns, that, wheeling, cast
> The Planets.

Similarly, the conception of the cosmos entertained by Saint Bhrigu is worth reading. He postulates an infinity of space, an infinitude of solar, lunar and stellar systems, and the existence of infinitely large worlds beyond our ken.

"The sun and the moon cannot see, above or below, beyond the range of their own rays. There where the rays of the sun and the moon cannot go, are luminaries which are self-effulgent and shining like the sun or the fire. Know this, O giver of honors, that even these luminaries which have great effulgence, do not see the limits of the sky for the inaccessibility and infinity of those limits. This space which even the very celestials cannot measure contains many shining and self-luminous worlds each above the other."

EXPONENTS OF WATER-ELEMENT

INDIA	*GREECE*
Vedic seers	Homer
Seers of the Upanishads	Thales

Yájnavalkya	Hippo
Bhrigu	

NEBULAR THEORY

Bhrigu	Kant
Dhírghatamas	Laplace

24. EARTH AS PROCREATRIX

How strange that earth should have been considered to be the ultimate substratum of all things? The Indian philosophers did not, however, mean our planet by their term 'earth,' but some subtle element which served as the foundation of all the substances. The Chhândogya Upanishad opens with the statement that the earth constitutes the essence of all substances; water is the essence of the earth, the annual herbs of the water and man[1] is the essence of the vegetables. The various stages of becoming are therefore earth—water—herbs—man.

The preceding passage bears a remarkable resemblance to the doctrine of the Greek philosopher, Zenophanes who flourished about the year 540 B. C. and affirmed that "All things come from the earth, and in earth all things end."

Here the earth is understood not as an element but as a heavenly body. According to another report he regarded all things as being generated from earth and water. "All things that come into being and grow, are earth and water. For we all are born of earth and water[2]".

1. I. 1, 2.
2. Burnet's Early Greek Philosophy, p. 120.

Thus one element or another was postulated as the world-ground in India as well as in Greece. In course of time, the monistic idea of one element was replaced by a plurality of elements as the original stuff of the cosmos. Then the process of evolution from the ultimate plural source was also differently concieved by different philosophers. Another illustration of parallelism in Greeco-Indian thought on the evolutionary process will be found in the next section.

25. CHARACTER OF ELEMENTS.

Although Anaxagoras differs from the Sánkhyas in the essential conception of the elements, he seems to have vaguely conceived of the First Cause in the Sánkhyan manner and explained the cause of motion on a similar basis. He is said to have believed that "before they were separated off, when all things were together, not even was any colour distinguishable ; for the mixture of all things prevented it—of the moist and the dry, and the warm and the cold, and the light, and the dark, and of much earth that was in it, and of a multitude of innumerable seeds in no way like each other. For none of the other things either is like any other. And these things being so, we must hold that all things are in the whole.[1]

The Anaxagorean Mind corresponds to the Purusha of the Sánkhyas. Like the Purusha, this Mind enters into somethings and not into others and that explains the distinction between the animate and the inanimate. It is the source of motion as well as of knowledge in

1, Burnet's E. Gr. Philosophy, p. 258.

men. Thus the psycho-mechanical explanation of evolution is common to both philosophies.

As to the character and composition of the 'elements' postulated as the first cause by the Greek philosophers, the interpretation of Mr. Lave is quite plausible. "When Anaximenes speaks of Air", says he, "as when Thales speaks of water, we must not understand these elements as they appear in *this* or *that* determinate form on earth, but as water and air pregnant with vital energy and capable of infinite transmutation." It is evident that both in India and Greece philosophers did not identify the final cause with its effects.

The percolation of the idea of the Bhútas being effects of something subtler is to be seen in the late Pythagoreanism. Pythagorus had adopted the doctrine of the ultimate existence of the four elements, but his followers did not accept them as ultimate. According to Plato, the Pythagoreans protested by saying that so far from being "letters", the four elements were not even syllables.

Every thing and being in the world is supposed by the Sánkhyas to contain every one of the five Bhútas in its composition, but each is called after the element which predominates in that over all others. For instance, the common water is so-called, because in its composition the water Bhúta predominates. In the Earth, the Earth Bhúta is prominent and the other four are present in an insignificant proportion. In the atmospheric air, all the four elements except the Air-

Bhúta are in a minority, so it is with the Ether and the Fire. It is evident that our common water, fire, air and earth are not identical with the Bhútas. These latter enter into the composition of each and every thing and being—the form, weight, etc., differing with the proportion in which the elements have been united in a particular thing. In short, they are universally and invariably present together in every thing, only the proportions of the compound vary from thing to thing.

This hypothesis radically differs from the Anaxagorean conception of the 'seeds'. While each one of these 'seeds' is supposed to contain all the things on the principle of Homocomerousness and hence an original plurality is affirmed, the Bhútas are postulated as products of a still subtler original unity—the monism of Pradhána.

PROPOUNDERS OF EARTH-ELEMENT

INDIA	*GREECE*
One Philosopher in the Chhándhogya Upanishad	Zenophanes

MIND-MOTION

INDIA	*GREECE*
Sánkhyas	Anaxagoras Pythagoreans

26. LOGOS AS FIRST PRINCIPLE.

The Biblical teaching in the Johannine Gospel that "in the beginning was the Word, and the Word was with God, and the Word was God. The same was in the beginning with God", has its counterpart in the Vedic and Upanishadic texts. For instance,

Logos alone is this cosmos, Sh. Br. 3. 5. 1. 34.
Logos alone is Brahma. Whatever is Brahma, is nothing but Logos.

Logos alone is Prajápati. Whatsoever is this all made, is Logos.

(Gop. Br. I. 2. 10 (11); Ait. Br. 2. 15; 4. 21; 6. 3; Sh. Br. 2. 1. 4. 10; 14. 4. 1. 23; Jai. Up. Br. 2. 9. 6; 2. 13. 2).

In the Káthaka Sanhitá it has been said that "Prajápati was all alone. Logos alone was his energy. This was the second existence. Prajápati desired that this Logos should spread all over this cosmos. Since the Logos comprehends all this manifestation, Prajápati causes the Logos to create." 12. 5. 27.

The same idea is repeated in the Tándya Bráhmana with greater clearness. "All this was Prajápati. But Logos was the second existence. In that Logos there was creative union. She (Logos) conceived. From this womb she went out and created all this world. (Having done all this work of creation) she returned into Prajápati." 20. 14. 2.*

The shades of difference in the doctrine of the Logos propounded by the Stoics, Philo of Alexandria and the later Christians need not be considered here. Suffice it to say that these doctrines were developed under Oriental influence. Max Muller regarded this theory as "not a cobweb or a metaphysical dream of abstruse philosophy", but as "one of the most natural

*Cf. Tait. Br. 1. 3. 4. 5; Sh. Br. 1. 6. 3. 27; 3. 1. 3. 22; 5. 1. 5. 6; 13. 4. 1. 15.

and most accurate, nay, most true conceptions of the creation of the world."[1]

27. EVOLUTION FROM MIND

In the preceding theories some element or an insentient entity has been posited as the primary cause of the cosmos. This materialistic and mechanical notion of the universe must have led people to believe in an automatic and inevitable evolution without any guidance from an intelligent cause. Such a materialistic view would have proved inadequate to explain the phenomena of life and consciousness. Some philosophers went deeper into the problem, and propounded a mental foundation of the universe. Bhrigu is one of those Indian thinkers whose system has a remarkable resemblance to the Biblical and Anaxagorean theory of cosmogony. In the Bible we read that 'in the beginning was mind and that Mind was with God, and that mind was God. The same was in the beginning with God. All things were made by it; and without it was not anything made that was made. In it was life.'

Bhirgu was the first to postulate the evolution of the cosmos from Manas, Mind, a primeval Being 'who is beginningless and endless, undecaying and immortal, unmanifest, eternal, unchangeable, through him creatures are born and through him they die.'[2]

This Manas is 'Mind,' 'thought-element' or '*Nous*' of Anaxagoras. According to Bhrigu, it produced Mahat which in turn created consciousness. From

1. Theosophy or Psychological Religion, p. 382.
2. Shânti Parva, 182 11-16.

it came out ether or space. From space was born water and from water sprang up fire and wind. From the union of these two came out Earth. Then was produced a lotus of Energy which, in turn, gave birth to Brahman, the creator of the visible universe. Thus the Bhriguic order of evolution was:—

Manas (Nous)— Mahat— Ahankára— Ether— Water— Fire and Wind— Earth— Lotus of Energy— Brahma— manifest universe.

It is evident that in this theory Bhrigu does not postulate primeval matter or Prakriti but *Nous* alone as the substratum of the universe. His evolutionary order seems to be older than the Sánkhyan one. According to him, ether produces water and this gives rise to the two elements of fire and wind. The idea of a lotus with the birth of Brahma from it forms the connecting link between the Vedic and Pauránik cosmogonies.

THE THEORY OF VYÁSA

There is still another variant of the Sánkhyan theory. Saint Vyása teaches[1] that the world began from Brahma who with the aid of Avidyá, produced Mahat It was transformed into Mind From it successively emerged ether, wind, light, water and earth. This is nothing but an anticipation of the Vedánta system of philosophy

Other philosophers were not satisfied with this theory of the emergence of the universe. They deeply felt that the material universe is always and everywhere sustained and directed by an infinite cause, for which the word 'mind' is the least inadequate and the most misleading symbol.

1. Shânti Parva, 232. 1-7.

28. ABSOLUTE SOUL—THE FIRST PRINCIPIUM

The conception of Mind as the root cause of the universe posited an intelligent and subtle entity, but even this could not explain all the phenomena of our complex human nature. The moral and spiritual nature of man as well as the meaning and purpose of the universe could not be explained without the hypothesis of an omnipotent and omniscient spirit working behind all phenomena. This theory is, of course, radically opposed to the mechanistic view of the universe, and has produced a rich crop of mystic, idealistic, theological and teleological doctrines to explain the evolution of the world.

Just as Anaxagoras and Diogenes taught in Greece that Soul was the first principle of all things, so in ancient India there were many philosophers who propounded and expounded the doctrine that either Brahman, or Átman was the efficient cause of the universe. In many passages Brahman and Átman are identical terms signifying an absolute spirit transcending the limitations of time, space and causation. The Vedánta defines Brahman as that whence is the origin, continuance and end of this universe.

(i) The Primeval Self has been postulated as the cause of the cosmos by the writer of the Aitareya Upanishad.[1] 'Verily, this universe in the beginning was soul, one only, no other winking or trembling (active or non-active) thing *whatever existed*. That soul bethought Himself:- "Let me now create worlds." He created these worlds.'

1. Chap I. 1. 1-4.

(ii) The Prashna Upanishad has very beautifully expressed the idea of the world-ground to be the Átman and Átman alone. All elements and their elementals as well as all the psychic powers merge into and emerge from the Soul. It is the Imperishable Soul alone wherein the conscious self, with all its powers and the life-breaths and the elements do rest.

'As the birds, O beloved one, repair to a tree to dwell there, so indeed this all repairs to the supreme soul, —(viz.,) the earth and the subtle elements (Mátra) of earth, water and the subtle elements of water, the light and the subtle elements of light, the air and the subtle elements of air, the ether and the subtle elements of ether, the eye and what is visible, the ear and what is audible, the smell and the objects of smell, the taste and what is tastable, the skin and what is touchable, speech and what is speakable, the hands and what is seizable, the organs of generation and what is enjoyable, the anus and what may be evacuated, the feet and what is moveable, the mind and what is an object of the mind, intellect and what is an object of intellect, self-consciousness and what is an object of self-consciousness, thinking (chitta) and what is an object of thinking, light and all that may be illuminated by life and all that is to be supported.'[1]

Another passage is no less conspicuous: "That verily, whence beings proceed, whereby they having arisen live, into which they at death return again, that seek then to know, that is Brahman."[2]

1. Prashna Up. IV. 7-11.

2. Tait. Up. III. 2.

(iii) The Brihad. Upanishad has a mystical passage which runs:—

'This was before soul, bearing the shape of a man. Looking round, he beheld nothing but himself. He said first:—'This am I.' Hence the name of 'I' was produced. Therefore even now a man, when called, says first: 'It is 'I' and tells afterwards any other name that belongs to him. And because he as the first of all of them consumed by fire all the sins, therefore he is called Purusha.'[1]

But a more clear and comprehensive teaching is couched in these words: 'The soul verily is the place of all things. The Soul alone was this before; he was even one.'[2]

The climax is reached in the sublime teaching of saint Sànat Kumára who has posited the Átman as the primordial entity giving birth to the physical, psychical and metaphysical phenomena.

'For him who thus seeth, thus believeth, and thus knoweth, the vital airs proceed from the Soul; desire proceeds from the Soul; memory proceeds from the Soul; space proceeds from the Soul; heat proceeds from the Soul; water proceeds from the Soul; birth and death proceed from the Soul; aliment proceeds from the Soul; power proceeds from the Soul; knowledge proceeds from the Soul; reflection proceeds from the Soul; sensitivity proceeds from the Soul; will proceeds from the Soul; the mind proceeds from the Soul; speech proceeds from the soul; names proceed from the Soul;

1. Brih. I. 4. 1.
2. Ibid. I. 16. 17.

mantras proceed from the Soul; sacrifices proceed from the Soul.—Verily all these proceed from the Soul.'[1]

(iv) In the Maitri Upanishad[2] it is declared:—'Verily, in the beginning this world was Brahman, the limitless one. Incomprehensible is that supreme Soul (Átman), unlimited, unborn, not to be reasoned about, unthinkable.—He whose soul is space. In the dissolution of the world, He alone remains awake. From that space, He, assuredly, awakes this world, which is a mass of thought. It is thought by Him and in Him, it disappears.'

In another dialogue, the Átman has been called the real of the real. From Him, like sparks from fire, come forth all breathing creatures, each in its order [3]

(v) But even more interesting and pregnant is the passage in the Taittiríya Upanishad[4] wherein the primeval substratum of the whole manifest world has been declared to be the Soul— really the Supreme Soul or Brahman, *the real*, the true knowledge, the infinite, the one established in the secret cavern of the heart and in highest heaven.

The passage in question may be rendered thus: "From this Átman verily was evolved Ákásha, the ether; from the ether, Air or Váyu; from the Air, Fire or Agni; from the Fire, Water or Ápa; from the water, Earth or Prithivi; from the earth, sprang forth the annual herbs; from the annual herbs food; from food

1. Chh. Up. VII. XXVI. 1.
2. Maitri. VI. 17.
3. Ibid, VI. 51-?2; VII. 7.
4. Tait. II. 1.

verile fluid, and from the virile fluid Purusha, for Purusha (Man) is really the essence of food."

A commentator of the Vedánta Sútras,[1] has reasoned out the point that the words "Tasmád etasmád" ought to be interpreted as "*from* Ether, Air" and not "After Ether, Air," because, he argues, it is a transmutation of the one substratum Átman. It must be admitted that there is a great confusion in the use of these words. They are regarded as subtle or ultra-atomic elements or states, in turn giving rise to the atomic or gross elements. There is a great diversity of opinion on the quantitative composition of the gross things known as earth, fire, etc., which are combinations of the subtle elements, but there is no disagreement as to their being results. The Chhándogya Upanishad identifies the gross water with the subtle element of water. The reason why water comes out of fire is thus given:—" And therefore, whenever any body anywhere is hot and perspires, water is produced on him from fire alone." On the other hand, in the commentary on II. 3. 9, it has been clearly mentioned that from the element water "food" can never evolve, because it is not a Mahá Bhúta-the great Element; hence the element Earth is meant by the word "Anna" used in the original text

In all these passages the pantheistic theory has been developed by various writers. The manifest and manifold world has been postulated as the transformation of the one substratum—Átman. Their analogies are met with in the writings of Ánaxagoras, Diogenes,

1. Vedânta. II. 3. 9

Anaximander, Zenophanes, Parmenides and others. The Hindu and the Greek philosophers named above, though developing the pantheistic theory did not declare the world or its substratum to be unreal or illusory. The Átman has been declared to be *Sat*—real, existent or *est* and so were the emanations from it *est* and real

The *Nous* of Anaxagoras "ever is, is certainly there, where everything else is in the surrounding mass, and in what has been united with it and separated from it. *Nous* is infinite and self-ruled, and is mixed with nothing, but is alone, itself by itself." The view of Diogenes was that all things were differentiations of the same thing, and were the same thing. 'And this itself is an eternal and undying body, but of those things some come into being and some pass away It is both great, and mighty, and eternal, and undying, and of great knowledge.' [1]

Anaximander postulated the infinite as the material cause and first element of all things. It was neither water nor any other of the elements, but it was the boundless, eternal, industructible substance out of which every thing arises and into which everything once more returns.

The passage of Taittiríya Upanishad is important as it lays down that the universe, after spontaneously passing through several grades of composition in which each stage has its own existence and still gives rise to another complexer thing, remains a transformation of the Átman. The things and beings of the world are Átman, only several degrees removed from it. The evolvent is the impeller of its evolutes.

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1. Burnet's Early Greek Philosophy, pp. 258-259, 353-355.

The passage is also important from another point of view. It belongs to a period when the Sánkhya philosophy had not made much progress. The five concepts of Ether, Air, Fire, Water, and Earth are mentioned together in this theory, but they are not the Bhútas of the Sánkhyas. The latter have Tanmátras as their parents. Each one of them has its own independent Tanmátra. The Earth-Bhúta, does not result from the transformation of the Water-Bhúta, but from its own subtler Earth-Tanmátra. The same holds good of each of the other quaternion.

Again, in this Upanishadic passage the Ether has been represented as having been directly evolved or produced from the Átman, the Universal Soul. There are no stages between this ultimate ground and the evolute Ether. But the Sánkhyas trace evolution from Prakriti instead of Átman, and moreover, interpose eighteen evolutes between the Ether and the original stuff; it is consequently clear that there is no similarity between the two systems compared here. The Sánkhyas, for ought we know, might have scientifically developed the crude idea of the Upanishad into a rational system.

29. PHYSICAL ORIGIN OF LIFE AND MIND

Thirdly, the Upanishad declares Purusha, Individual Soul or the vital Principle of Life, to be an evolute of food which is developed after the earth has come into existence.

'Man is what he eats.' This maxim of Sauerbach is a replica of Sushruta. It appears to me that the last-mentioned thought of the Upanishad can be explained

in the light of Sushruta's theory. The great physician has explained how food is transformed successively into chyle, blood, flesh, fat, bones, marrow, albumen, and semen. Thus chyle strengthens all the fundamental principles of the body and produces Purusha or self-conscious personality. *Rasa*—chyle is metamorphosed into Purusha, and the same thing is taught in the Upanishad.

A Soul is consequently a physiological product and not any spiritual, eternal, independent entity. Just mark the identity of language below:

Taittiríya Up.	Sushruta Sanhitá.
The earth gives rise to herbs; these provide food; from food is produced semen; from semen Purusha; Purusha is verily the essence of food.	Food is transformed into chyle. This is converted through several stages into semen and catamenial blood. Therefore the Purusha is chyle-born in its origin.[1]

Once more, Sushruta declares that the immediately prior cause of the human organism is a proper and congenial admixture of the sperm and ovum, and that even the sense organs are the resultants of the phenomenal evolution of matter like the objects of sense perception which are material or phenomenal in their nature.[2]

EMANATION THEORY

In direct opposition to this physical interpretation of life is the Vedántic doctrine of the emanation of the world from Brahma.

1. Sushruta Sanhitá, Vol. I, 107-110.
2 Ibid, Vol. II, 118.

The Vedántic doctrine of the world being a modification of Brahma Himself is persistently to be found in the Upanishads and the Puranas here and there. It is generally affirmed that from Vishnu springs the world and in Him it abides or that He is the world. As a spider draws out the thread from the stomach and again draws it into its body, similarly the world emerges from the body of the Lord and merges back into Him.

In the Brihad. Upanishad it is declared: "Before the beginning of creation, there was only One without a second. Brahman desired to become manifold, he himself made himself, he is the birth-place of beings, he emits them from himself and re-absorbs them into himself, as does a spider with its thread.

'This' universe existed enveloped in darkness, unperceived, destitute of distinctive marks, unattainable by reasoning, unknowable, wholly immersed, as it were, in deep sleep. Then the divine Self-existent, indiscernible, but making all this universe, the great elements and the rest, discernible, appeared with an irresistible creative power, and dispelled darkness."

Finally, the analogies of the Mundaka Upanishad [1] are very appropriate in explaining the emanation theory: "As a spider stretches forth and gathers together its threads, as herbs grow out of the earth, as from a living man come out the hair, so from the *Imperishable comes out the Universe.*"

Elsewhere, the emanation theory has been beautifully expressed thus:— 'As from a well-lit fire, sparks

1. Mundaka, I. 1. 7.

of like nature to it, arise thousand-fold, so, dear one, from the Imperishable go forth manifold beings and return into it again. From Him is produced breath, mind, all the senses, space, air, light, water, and earth which is the support of all the preceding four.'[1]

The Shvetáshvatara Upanishad also says: 'The one, formless Being who with his hidden purposes, and with *various powers*, creates infinite forms: from whom the world rises in the beginning and to whom it returns at the end, may grant us auspicious intellect.'[2]

In every periodical re-absorption of the world in Brahman, the elements are withdrawn again into one another in the reverse order; i. e., the earth becomes water again; water, fire; fire, air; air becomes ether, and the ether re-enters Brahman.

So Brahman is both the material and the efficient cause of this world. He is the omniscient and omnipotent cause of the origin, preservation and extinction of this cosmos.

The whole world is in reality only Brahman and has no existence beyond Brahman. It is, however, only an illusion (Máyá) which Brahman projects from himself like a magician, and by which he is not affected any more than the magician is by the magic he creates. However, the non--existence of the world is only relative; the plurality of phenomena, names and forms, and the Máyá are such that one cannot say that they are Brahman, not yet that they are different from Him. They are, like the figures in a dream, true as long as

1. Mundaka, II. 1. 1. Cf. Tait. Up. II. 6; Prashna, IV. 7-8; Chh. Up. VI. 6. 7.
2. Shvetá. IV. I

the dream lasts, and are so no longer when the waking comes.

EXPOUNDERS OF SOUL-PRINCIPLE

INDIA	GREECE
Aitreya Upanishad	
Prashna Upanishad	
Brihadáranyaka Upanishad	
Taittiríya Upanishad	Diogenes
Maitri Upanishad	Anaxagoras
Sanatkumára	
Vedánta Philosophy.	

INDIAN PHYSICISTS

A philosopher in the Taittiríya Upanishad
Sushruta
Chárvákas
Sánkhyas

30. PARALLELISM IN THOUGHT

It has now been shown that the quest for a permanent and ultimate substratum of the manifold changes of the visible world resulted in the enunciation of various entities like time, nature, necessity, night, chance, elements, Prakriti, *Nous*, Átman and Brahman as *prima materia*. Just as many philosophers arrived at the same conclusions at different times and probably at the same time in different parts of the continent of India, so it is probable that thinkers in other lands such as Egypt, Persia, Greece, might have independently moved in the same groves. Parallelism in thought is not an exception but the rule. It is also possible that sparks of Indian speculation carried from India by missionaries and merchants to Babilonia

Syria, Alexandria and Nineveh, served to light up the imagination of the philosophers of those lands. But this is merely a surmise. We must wait for more light on the origins, mutual relations and the influences of ancient cultures. The researches of Egyptologists, Assyriologists, Indologists will sooner or later unravel mysteries of this important controversy. For the present in the light of the facts presented in this chapter it can not be disputed that in India cosmogonic speculations began several centuries prior to those in Ionia, that Indian seers and thinkers were the predecessors of the Greek philosophers, and the anticipators of the many solutions of the eternal riddles of life. The reader can now realise the sweeping nature of the remarks of Sir Henry Maine who said that "To one small people........ it was given to create the principle of Progress. That people was the Greek. Except the blind forces of Nature, nothing moves in this world which is not Greek in its origin."

We shall not be guilty of going to the other extreme of declaring India to be the cultural sun whence light radiated to all the quarters of the globe, but so much is certain that speculative philosophy and scientific research began to flourish in India several hundred years before they saw the light of day in the land of the Hellenes.

During this period of decline and degeneration many of us fight shy of the sublime contention of the primeval law-giver Manu who millenniums before our age claimed for India what Maine has done for Ionia:—

"Let all men on earth learn their duties, laws, and customs from Brahmans born in India."

We are diffident in reminding the reader of the great historic truth expressed by the greatest Chinese traveller, H. Tsiang that India was so called because it was 'Indu' the moon, while all other countries of our planet were dim like stars.

31. SUMMARY

The earliest Hindu contributions on the problem of the origin of the world, taken out of the labyrinth of details, can now be presented categorically in the following propositions:

1. There is a primordial principle which persists amidst the general flux of things or remains constant through the apparently multitudinous changes.

2. This *prima materia* is all-pervading and subtle,. but so pliant as to assume through rarefaction and condensation millions of forms. The qualitative differences are in essence quantitative differences only.

3. The original stuff is also indestructible. The nineteenth century science proved the indestructibility of matter. To-day the dematerialisation of matter is believed by scientists, but the doctrine of the conservation of matter enjoyed a long sway in the realm of science.

4. The wings of philosophic imagination in its flight to the divine and to the true nature of the final causes, are clipt at an early stage. Philosophy like science ultimately turns back from its futile quest after the first cause. It is forced to assume something as the original stuff to escape the charge of the *regressus ad infinitum*.

5. The doctrine of the spontaneous production of the world out of the fortuitous concourse of atoms was first postulated by the Chárvákas. They also taught the theory of the spontaneous generation of life from non-living matter and declared life as an automatic function of every organism. Mind, memory, imagination, consciousness–in fact, the whole nervous and psychic apparatus of man, are postulated as material productions from elements. Nature, independently of all supernatural intervention, and through its internal impulse alone, multiplies into millions of objects. This very nature is the sole producing as well as sustaining cause of the cosmos. There is no divine agency above and behind the operations of nature.

6. Many philosophers in the Vedas, Upanishads, and Mahábhárata posited 'Embodied Time' as the one primitive stuff which modified itself into millions of worlds and their objects. The same idea was postulated by the Persians, Phœnicians, Orphics and several other Greek seers.

7. The conception of 'Night' as the primal procreatrix is met with in Homer, Epimenides, Acusilaus and other Greek writers, as it is in the Vedic and the post-Vedic literature. Here are striking parallelisms The Indian speculation surely preceded that of other lands, but there is yet no positive evidence of its influence over the other.

8. The boldest and earliest attempt to postulate 'ether' as the world-ground was made by Indian philosophers. It was a brilliant flash of genius which has connected the oldest philosophy of the East with

the latest science of the West. The process of regression from plurality and finitude to unity and infinity ended in the enunciation of ether as the primary matter. From the Upanishadic literature we do not get a clear insight into the nature of this substance. Later philosophic schools throw more light, but still in that speculative age thinkers could not, through the flashes of imagination, realise the truths of the modern experimental science. Some Indian seers confounded space and ether as was done by Descartes and Spinoza, while others like Newton differentiated between the two categories.

9. A few Indian philosophers like Raikva, Ushasti, Pippaláda, Bhrigu, Kaushítiki and others anticipated their Greek successors like Anaximenes and Diogenès in deriving the cosmos from 'Air'.

10. It is very strange that both Bhrigu and Anaximenes should have anticipated the *Nebular Hypothesis* of Kant and Laplace.

11. Another remarkable discovery of the Hindu seers for the advancement of science was that the progressive differentiation of matter was due to condensation and that its disintegration can be explain ed by rarefaction.

12. A set of philosophers like Gautama, Uddálaka, and Jaivála formulated Fire to be the cosmic procreatrix. Later on in Greece the same idea was expressed by Heraclitus and Hippasos. An inexplicable similarity exists in the doctrines of Uddálaka in India and Heraclitus in Greece. They both endowed Fire with Nous or consciousness.

13. The doctrine of water being the original substratum of the universe first propounded by Thales in Greece, is most frequently found in the oldest literature of India. "Earth, mountains, clouds, and all things which have form, should all be known as transformations of water. They have all been produced by the solidification of this element." That life had its beginnings in water, is a theory fully substantiated by modern science.

14. Finally, we approach the stage when the mechanical theory of the origin of the cosmos from some one or another physical substratum gives place to pantheistic doctrines. These differ in detail, but are unanimous in positing a Supernatural Soul-power, Mind, Átman or Brahman as the efficient and the material cause of the world. The five ultimate substances of the various philosophers are synthetically woven in a series, and this whole series, through progressive stages, is said to have emanated from the supreme psychic source. During this synthetic period thinkers concentrated their speculations on two points:—

A. The order of more and more complexity and integration among the five elements.

B. The nature and attributes of the Supreme Soul whence emerged this material world.

The controversies culminated in a stereotyped order which has remained unchanged for the last twenty-five centuries. It has formed the rocky foundation of all the cosmogonic theories enunciated by various philosophic schools in India.

On the other hand, philosophers drifted apart from each other on the nature of the ultimate and supreme source of this material pentad. Monism, Dualism, Dualistic Monism, Agnosticism, Deism, Theism, Atheism and a variety of other 'isms' had their origin in unravelling the mystery that veils the nature of the Final Cause.

15. In the history of Indian speculation there followed a stage when the idea of One, Eternal, Supernatural, Supreme, Omnipotent, Omniscient, Imminent and Transcendant Deity as the Mind and Matter of the cosmos gave place to the three co-existing, correlating, eternal entities combining for the evolution of the organic and inorganic world. One system shunted off the Supreme Soul beyond the sphere of its speculation and rivetted its attention to the inter-relations of spirit and matter. This atheistic Sánkhyan philosophy became the most popular system in India. We will mainly rely upon the cosmogonic speculations of the Sánkhyas, as they have left a lasting stamp upon all other systems of thought and have struck a mean between the theistic and materialistic theories of evolution.



"Of the philosophical schools it will be sufficient here to remark that the first Nyaya seems analogous to the Peripatetic; the second, sometimes called Vaiceshika, to the Ionic; the two Mimansas, of which the second is often distinguished by the name of Vedanta, to the Platonic; the first Sankhya, to the Italic; and the second or Patanjala, to the Stoic philosophy; so that Gautama corresponds with Aristotle; Kanada, with Thales; Jaimini, with Socrates; Vyasa, with Plato; Kapila, with Pythagoras; and Patanjali, with Zeno. But an accurate comparison between the Grecian and Indian schools would require a considerable volume."

—*Sir William Jones- Works, I, 360.*

"Adverting to what has come to us of the history of Pythagoras, I shall not hesitate to acknowledge an inclination to consider the Grecian to have been on this, as on many other points, indebted to Indian instructors."

— *Colebrooke, Misc. Essays, p. 412.*

"Les analogies sont assez nombreuses et assez profondes pour qu'il soit impossible de les regarder comme accidentelles."

—*Barthélemy Saint-Hilaire--Premier Memoire sur le Sânkhya.*

Ed. Roth, C. B. Schlüter, L. Scheriman, Aug. Gladisch, and Baron V. Eckstein also enthusiastically prove the influence of the Indian thought on the growth of the Hellenic philosophy.



CHAPTER III

THE SANKHYAN IDEAS IN THE UPANISHADS

"The earliest attempt at a constructive theory of the cosmos, and certainly one of the most interesting and remarkable, is that which is set forth in the Upanishads."

—*Professor J. S. Mackenzie.*

The cosmological conceptions treasured in the mystic literature of the Upanishads, are the earliest and boldest attempts to present consistent systems of the evolution of the manifest world. In some cases they form the foundations of later philosophies; in others, they are adaptations of the prevalent thoughts. The beginnings of the Sánkhya philosophy of evolution can be traced to the theories formulated in the ancient Upanishads. These are certainly remarkable in the history of speculative thought.

1. THE SANKHYAN ROOTS IN THE CHHANDOGYA UPANISHAD

The idea of the Sánkhyan Prakriti can be traced in the Chhándogya Upanishad. It is said that originally there were three primary colours, the red, the white and the black which may really be said to exist, while all other things that emanate from them are merely a word, a name and a mutation. Here we have the radicals of the three Gunas of the Sánkhyas.

2. EVOLUTIONARY ORDER OF THE KATHAKAS

The terminology of the Katha Upanishad[1] is with the exception of the word 'Artha' for Tanmátra

1. III. 10-13.

exactly similar to the one employed in the Sánkhya system. The order of evolution from the subtlest to the more and more gross forms is said to be

i. Purusha
ii. The Unmanifest--Avyakta
iii. The Mahat Átmá—Great Soul
iv. Buddhi—Consciousness or Intellect
v. Manas—Mind
vi. The Tanmátras or the subtle objects of sensation [1]
vii. Ten powers of sensation and action.

The Purusha is the ultimate reality, as beyond and above the Purusha there is nothing else.

Here we have a pantheistic doctrine of evolution whose stages of development, in spite of similar terminology, radically differ from the Sánkhyan order. The Great Soul and the pre-evolute matter (Avyakta) are postulated as evolutes or transformations of the Purusha Himself. They are not independent entities, but manifestations of the substratum Purusha.

The other text is a little different from the above for eliminating the Tanmátras. Therein the use of the word 'Sattva' for 'Buddhi' is most significant, because, according to the Sánkhyas, Buddhi is the manifestation of the Sattva Guna. The various stages of transformation in the ascending order are said to be the powers of sensation and action, mind, Sattva, Mahán-Átmá, the Unmanifest and the Purusha. Though these categories play an important part in the Sánkhya system, yet they are not identical. The Purusha has been described in terms different from those of the

1. 'Artha' generally means an object of sense, but this meaning is quite inapplicable here.

classical Sánkhya, as omnipresent, without any cause and distinctive mark whatsoever. Its real nature becomes manifest, when it has been perceived by the notion of existence. (VI. 7-8)

3. SANKHYA IN THE SHVETASHVATARA

The Sánkhya doctrine seems to have become the accepted theory of the times when the Shvetáshvatara Upanishad was written. There is a mystic passage[1] in which the various categories have been interpreted in the Sánkhyan sense by many commentators. Prakriti has been accepted as the primeval cause of creation and it is said to be 'the Divine Self-power fully concealed in its own Gunas.' It probably means that the supreme self becomes individual self through envelopment of its own Gunas. It is described as having three layers of the Gunas of Sattva, Rajas, and Tamas; sixteen ends, i. e., sixteen categories[2] of the Sánkhyas; fifty spokes,[3] twenty counter-spokes, and six sets of eights[5] or octads. These numbers are rather mystical and can be interpreted in numerous ways, yet the doctrine of Gunas enveloping and deluding the self points to the Sánkhyan categories. The succeeding verse confirms a part of the doctrine. Further on, in another passage the Sánkhyan hypothesis of the Purusha-Prakriti is unmistakably meant. It is said that the one unborn Purusha for his enjoyment

1. VI. 13; I. 3-4.
2. Eleven organs and five gross elements.
3. Five classes of ignorance, 28 disabilities, nine kinds of acquiescence and eight sorts of perfection.
4. Ten organs and their ten objects.
5. All these have been fully enumerated by Shankara.

approaches the other unborn (Prakriti) which is white, red and black, and which has one form but produces a manifold offspring; the first unborn male leaves her when he has had his delights with her.

The two verses succeeding the one given above also point to the same doctrine in another form. [1]

The knower of the Supreme Lord who can be comprehended through the Sánkhya and Yoga philosophy, has been promised liberation from all bonds.

A great controversy has raged on the true import of the word Kapila occurring in the Shvetashvatara Upanishad. Whether Kapila denotes Brahma or the founder of the Sánkhya philosophy is not clear at the surface. In the Upanishadic text Kapila has been described as the divine sage born of God himself and endowed with every kind of knowledge. In the next verse, God is again described as creating divine sages. One verse [2] posits Brahma as intermediary between God and his creation. In two other verses [3] Brahma is replaced by Hiranyagarbha. No distinction is made by commentators among the three words Kapila, Brahma and Hiranyagarbha used in the Upanishadic text. New light is thrown on the true imports of these words by the passages reproduced from the Shánti Parva.

It appears that both schools of thought are correct. Kapila, the founder of the Sánkhya system, was given divine origin and honours and even identified with

1. IV. 5-7, 10. Cf. I. 10; VI. 3, 10.
2. VI. 10.
3. III. 4; IV. 12.

God himself. It is said that the Sánkhyans used to call the supreme soul by the various names of Virincha, Prajápati, Brahma and Eternal Kapila, while the Yogins adored him under the name of Hiranyagarbha.[1]

We are also told that the primeval Hiranyagarbha and none else, was the promulgator of the Yoga system; that both the Sánkhya and Yoga systems are eternal.[2] It seems most plausible that the Shvetashvatara Upanishad was written at the time of the parting of the ways between the Vedántic, the Sánkhya and the Yoga schools of thought, which explains why we have not in the Shvetashvatara cut-and-dried doctrines about Nature and God and their inter-relation.[3]

Further confirmation of this compromise is to be seen in the Váchaspati Gloss on Yoga I. 25.

'The tradition is that Kapila got the knowledge by the grace of Maheswara just as he was born, and he is known as such as a particular kind of Vishnu's incarnation. Svayambhu is Hiranyagarbha. It is learnt from the Veda that he too got the knowledge of the Sánkhya-Yoga. The same Ishwara, the self-existent Vishnu, was the first wise man, Kapila. The meaning is that he is the Ishwara of those who proceeded from Svayambhu and others' (S. B. H. Vol. IV, p. 48).

4. COSMOGONY IN THE PRASHNA UPANISHAD

The use of the Sánkhyan terminology and of the ascending order of subtlety in the Prashna Upanishad proves the prior development of the Sánkhya philosophy.

1. Shanti P. 243. 92-93, 94.
2. Ibid. 350. 64, 72.
3. Ranade-Constructive Survey, p. 187.

It has been declared (IV. 7-8) that (at the time of dissolution) all things take shelter in the Supreme Soul, just as (at nightfall) birds resort to a tree for a resting place. The categories in their ascending order are enumerated as below:

I. Earth, water, heat, air, ether and their rudiments or Tanmátras.

II. Sight, hearing, smelling, taste and touch, and their respective objects.

III. Tongue, hands, feet, generative organ, excretive organ with their objects of action.

IV. Mind, Buddhi, Ahankára, Chitta, Prána and their functions.

Not only these but even an Individual Soul which has been called Vijnánátmá and which experiences all these perceptions of the sensory and motor organs, finds its final refuge in the highest and undecaying Átman.

Thus while on the one hand, this passage is an unequivocal testimony of the Trinity of Matter, Soul and God, it is, on the other, remarkable for presenting the Sánkhya doctrine of evolution in a little varied garb. Chitta and Prána have been substituted for the pre-evolute matter of the Sánkhyas, otherwise there is perfect similarity between the categories of Pippaláda, the seer of the Prashna Upanishad and of Kapila, the propounder of the Sánkhya philosophy. Once more, the same saint Pippaláda maintains Prána to be the first cause of the cosmos. Its successive manifestations and dissolutions have been thus described by him:—

"He created Prána; from Prána, sprang up shraddha, ether, air, heat, water, earth, organs, mind, and food; from Food, virility, austerity and sacred Mantras, the worlds of action and in the worlds, names or individual things and beings. As the flowing rivers that tend toward the ocean, on reaching the ocean, disappear; even their names and forms are destroyed, so that it is simply called the ocean, even so of this Spectator these sixteen parts that tend toward the Person, on reaching the Person, disappear, their names and forms are destroyed, and it is called simply 'The Person.'"[1]

As this doctrine declares all things to have immediately emanated from the supreme source, it is distinctly pantheistic and bears a superficial resemblance to the Sánkhyan system. Its importance lies in the recognition of the five elements and in the audacious declaration that the life-breaths (Prána) are identical with the Individual Soul.

5. THE SANKHYA AND THE MUNDAKA UPANISHAD.

An exact parody of the preceding doctrine is met with in the Mundaka Upanishad[2] wherein it is said that from the Supreme Soul are produced breath, mind and all the senses, ether, air, heat, water, and earth.

This passage is important on account of the fact that the Earth has been called 'the supporter of all.' It means that the Earth has not been considered as a subtle element or any essence of things, but signifies the stuff of which this planet is made. Here the 'Earth' has been looked upon as one of the pentads born from

1. VI. 4-7.
2. II. 1. 3.

the Cosmic Person. Hence the remaining quaternion of ether, air, fire, and water too must be the very things as they are found in the world. Such an idea naturally belongs to pre-Sánkhyan days, when these five substances were regarded as entering into the composition of every thing and being.

6. SAṄKHYA IN THE MAITRI UPANISHAD.

Sage Sákáyana postulates the existence of the Supreme Soul, the individual soul and the Prakriti. Much light is thrown upon the Sánkhyan doctrine of evolution by the discourses given by that sage. The primeval person progressively manifested himself into inanimate things, the five physiological functions, the human person, and his functions. The individual soul has been called Bhútátman or Spirit-in-body. This spirit overcome by the bright or dark fruits of action, enters a good or an evil womb, so that his course is upward or downward and he wanders about, overcome by the pairs of opposites.

The etymological explanation of this Bhútátman is interesting. The five rudents (Tanmátras) are spoken of by the word Bhúta, so are the gross elements also called Bhútas. The combination of these ten Bhútas is known as 'the body'. As the Átman assuredly resides in the body, it is known as Bhútátman.[1]

This 'Soul-in-body' by being overcome by the three Gunas of Prakriti, becomes confused. It can not, therefore, see the Blessed Lord who also lives within the body. Borne along and defiled by the stream of qualities, unsteady, wavering, bewildered,

1. II. 6. Cf. 3-2, 5.—Hume-Principal Upanishads.

full of desire, distracted, this self goes into the state of self-conceit or Egoism. In thinking 'This is I' and 'That is mine,' he binds himself with his self, as does a bird with a snare. Consequently, being overcome by the fruits of his action, he enters a good or an evil womb, so that he wanders along the stream of life.

As to the correlation of the three eternal entities, the Upanishad goes on to say:—

The Soul-in-body is the doer, but the causer of action through the organs is the Inner Person. Now, verily as a lump of iron, overcome by fire and beaten by workmen, passes over into different forms—so, assuredly, indeed, the Soul-in-body overcome by the Inner Person and beaten by qualities, passes over into different forms. The mode of that different form, verily, has a fourfold covering[1], is fourteenfold[2], is transformed into eighty-four lakhs of different beings. These varieties are driven by the Person, like the wheel by the potter[3].

Elsewhere in the same Upanishad it is said that the Conscious Person stands in the midst of matter (Pradhána). He is an enjoyer, for he enjoys the food of nature (Prakriti). Even this Soul-in-body is food for Him; its maker is matter. Therefore that which is to be enjoyed consists of the three qualities (Gunas), and the enjoyer is the Person who stands in the midst.

In short, it has been declared that matter is the thing to be enjoyed by the Individual Soul. This

1. Four genuses of sentient beings.
2. Fourteen classes of beings.
3. Maitri III. 1-3.

matter which is the food of the soul, through the separ ation of the three Gunas, becomes the subtle body, which includes all manifestations from intellection up to the separate elements (Vishesha).

Regarding the stages of development, the Upanishad propounds:—

When matter passes on to the state of being manifest, there arises the perception of it. And therein, namely in the tasting of sweetness, there arise intellect and the like, even determination, conception, and self-conceit. So in respect to the objects of senses, the five organs arise in the tasting of sweetness; thus arise also all actions of the organs and actions of the senses. Hence the manifest is food and the unmanifest too is food.

The enjoyer of this food, the Soul-in-body, is without qualities, but from the fact of his enjoying, it is evident that he possesses consciousness.[1]

The preceding passages explicitly enunciate the Sánkhya doctrine and clear up many difficulties. This exposition is probably the oldest in the Sánkhya literature as the Maitri Upanishad is older than the Sánkhya Káriká of Ishwara Krishna which is the first and the foremost attempt to present the Sánkhya philosophy in a systematic form.

7. The *Isha Upanishad* does not contain any reference to the Sánkhya, but according to Shankara the word *Asambhuti* in the 12th verse, means Prakriti, and consequently there is an anticipation of the Sánkhya philosophy in the Isha.

1. Maitri VI. 10.—Hume-Principal Upanishads.

As the same verse is found in the Brih. Up. (IV. 4. 13), Shankara's interpretation leads us to the conclusion that the rudiments of the Sánkhya philosophy were to be found at the time of the composition of the Brih. Up. The other ancient upanishads like the Chhándogya and Kaushítaki have no clear and unequivocal references to the Sánkhya theory.

8. *The Atharva Veda* refers to the Sánkhyan doctrine of the Gunas, the Individual Soul and the Supreme Soul in the two verses of XVI. 8. 43-44. "The lotus (human body) with nine orifices is enveloped with three kinds of Gunas. In this whatever Yaksha resides like the self, that alone the Brahma-knowers know as the one without desire, constant, eternal, self-born, completely satisfied, and perfect. Him they know, without being afraid of death, as the Self which is constant, undecaying and ever-youthful."

Prof. A. B. Keith[1] does not accept this interpretation, especially because the Gunas are described as covering the body and not making the body. But in the language of the Bhagwadgítá the Gunas or qualities born of matter bind the indestructible soul in the body (XIV. 5). The attachment to qualities is the cause of a soul's birth in good and bad wombs (XVII. 21). 'When at all the gates in this body the light of wisdom is born, then one should know the Satva to be predominant.' Further, the qualities have been described as the impellers of actions in the body (XIV. 11, 19). This envelopment of the Gunas is the cause of the body and its actions according to the Sánkhya theory.

1. The Sankhya System, p. 19.

Hence we believe that the said Vedic verses contain an important truth of that system.

9. THEORY OF NUN SULABHA

Lastly, we will take notice of the cosmogonic theory propounded by the lady philosopher Sulabhá to the grandfather Bhishma of the Mahabharat fame. She is against the atomists of the Kanáda school whom she calls men of gross vision as they posit the manifest to be the cause of the world. She accepts the Sánkhyan doctrine that Prakriti forms the starting point of the cosmos, but she rejects their order of evolution and postulates thirty categories as under:–

Mind, five sensory organs, five motor organs, Buddhi, Satva, Ahankára, desire, Avidyá, Prakriti, manifestation, pairs of opposites,[19] Time,[20] five elements,[25] existence,[26] non-existence,[27] Vidhi[28] (order), Shukra[29] (energy) and Bala[30] (strength).

'That in which these thirty principles exist, is said to be the body.[1]'

The twin systems of the Sánkhya and Yoga were held in high esteem by the ancients. The Mahabharat has treasured up their views on these points in long discourses of which only a quintessence is given below.

10. REVERENCE FOR SANKHYA.

In the Shanti Parva the supreme God is called the receptacle of the Vedas, the powerful Hari is Yoga. He is the embodiment of the Sánkhya philosophy. He is that foremost Brahma of which we hear.

1. Shanti P. 321. 103-115. Cf. Datta's Translation, Shanti P. Pp. 478, 480, 526.

Kapila with six other sages is described as the spiritual son of Brahman. Knowledge came to the seven saints of itself. They were the foremost of all persons conversant with Yoga. They had a profound knowledge of the Sánkhya philosophy.

Hiranyagarbha, the founder of the Yoga philosophy, is called eternal

Vasishtha acquired the Yoga knowledge from the eternal Hiranyagarbha himself.

On the basis of revelation (Shrutis) it is declared that the Sánkhya system is a form of the formless one.

This philosophy is said to have been recited by Náráyana Himself[1].

The popularity, superiority and even the divinity of the Sánkhya system are stamped in the discourses of the Shanti Parva. The Sánkhyas have been declared to have a clear knowledge of the soul, as men of keen understanding, and as scholars gifted with great wisdom.

The learned declare the system to be very extensive. Yogins have respect for it as also for the Vedas. It is the excellent science by which all things have been correctly determined.

"There is no knowledge like that of the Sánkhyas. There is no power like that of Yoga. These two prescribe the same practices, and both are considered as capable of leading to liberation.

Those men who are not blest with intelligence consider the Sánkhya and the Yoga systems to be

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1. Shanti P. 348. 78; 341. 67-69; 309. 40; 299. 40; 302. 106; 340. 107; 303. 46.

different from each other. We, however, O king regard them as one and the same, according to the conclusion to which we have arrived.

What the Yogins have in view is the very same which the Sánkhyas also have in view. He who sees both the Sánkhya and the Yoga systems to be one and the same is to be considered as truly conversant with the principles that ordain the universe (Sh. P. 317. 2-4).

Those principles have been laid down by all the great and powerful Yatis having Kapila for their first:

In that doctrine, O king, no errors are seen. Its merits are manifold. In fact, there is no fault in it.

The Sánkhyas, endowed with knowledge and experience and exalted by their perceptions of causes, and acquiring thorough auspiciousness, attain to the happiness of liberation like the rays of the sun, or the wind, taking refuge in ether (Sh. P. 302. 3-4, 16-17).

Bhishma has thus exalted the system of Kapila (Sh. P. 302, 106-115):—

"That high knowledge, O king, which is in persons conversant with Brahma, that which is in the Vedas, that which is seen in other scriptures, that in Yoga, and that which may be seen in the various Puranas, these are all, O monarch, to be found in the Sánkhya philosophy.

Whatever knowledge is seen to exist in great histories, whatever knowledge is, O king, in the sciences about the acquisition of riches as approved by the wise, whatever other knowledge exists in this world,—all

these,—originate, O great king, from the high knowledge that is among the Sánkhyas.

Tranquillity of soul, high power, all subtle knowledge of which the scriptures speak, penances of subtile force, and all sorts of happiness, O king, have all been duly ordained in the Sánkhya system.

Failing to acquire, O son of Pritha, that complete knowledge which is recommended by their system, the Sánkhyas attain to the dignity of gods and pass many years in happiness. Ruling over the celestials as they will, they fall, upon the expiration of the fixed period, among learned Brahmanas and Yatis.

Renouncing this body, those twice-born ones that follow the Sánkhya system enter into the superior state of Brahma like the gods entering into the sky by devoting themselves wholly to that worshipful system which is adored by all wise men.

Those twice-born ones who are given to the acquisition of that knowledge which is recommended in the Sánkhya system, even if they fail to acquire eminence, are never seen to fall among intermediate creatures, or to sink into the state of sinful men.

That great person who is fully conversant with *the vast, high, ancient, ocean-like, and immeasurable Sankhya system*, and who is pure, liberal and agreeable, becomes, O king, equal to Narayana.

I have now told you, O god among men, the truth about the Sánkhya system. It is the embodiment of Náráyana, the Inner Soul of the universe as it exists from antiquity. When the time of creation comes,

He causes the creation to come into being, and when the time comes for destruction, He swallows up everything. Having withdrawn everything into his own body he goes to slumber,—that inner Soul of the universe."

9. ANTIQUITY OF THE SANKHYA SYSTEM

The Chhándogya which belongs to the oldest group of the Upanishads, does not show any trace of the Sánkhya philosophy, but itself forms a basis for its origin. It means that 1200 years before Christ the Sánkhya system did not exist. The Katha, Mundaka, Shvetáshvatara, Prashna and Maitri Upanishads only have referred to the Sánkhya system. By the time of the compilation of the Shvetáshvatara which may be placed in the 7th century[1] B C., the founders of the Sánkhya and Yoga philosophies were looked upon as divine personages. The process of the deification of Kapila in the 7th century B. C. must have taken a long time after the death of the saint. The doctrines too must have taken a century or two to develop and spread the system among the educated people. So the germs of the Sánkhya may reasonably be said to have originated about one thousand years before Christ.

1. R. D. Ranade, A Cons. Survey of Up. Philosophy, pp.11-16.

CHAPTER IV

Co-Eternity of Life and Matter

I spoke as I saw,
I report, as a man of God's work-all's Love, yet all's Law.
Now I lay down the judgeship He lent me. Each faculty tasked
To perceive Him, has gained an abyss where a dewdrop was asked. *Browning.*

I acknowledge a physical world which, I admit, is beyond proof. I acknowledge also God who is, I contend, beyond proof. *C. Lloyd Morgan*[1].

1. Origin of Life

The Hindus enunciated the theory that life-germs or souls are scattered through space and are conveyed from one planet to another when conditions are ripe for animal life there. They, like the moderns, believed that the universe consists of systems at every stage of development; some systems are just emerging from primeval matter, others are being resolved into the same, while still others are in numerous stages of evolution. Then life extinguished in one system, goes to another which has become fit for receiving it.

Lord Kelvin postulated the theory of life-germs being conveyed in the crevices of meteors, but the Hindu philosopher endowed these life-germs with self-migratory energy, conscious activity, and selective power. Secondly, the hypothesis of an eternal life-unit has not yet been upset by science. It is admitted that dead protoplasm does not produce living protoplasm, although the molecules of both are exactly the same in

1. **Emergent Evolution, pp. 61,86.**

their compositions. It is the living protoplasm which has the power of selection, assimilation, preservation, transformation and development. No physico-chemical theory has satisfactorily explained these facts. Again, though all organisms assimilate inorganic substances and give off inorganic products, no inorganic object has been seen to produce the phenomenon of life. Thirdly, the genesis of consciousness, the nature of a conscious process, the processes of life in individual organisms, the wide differences in the forms, habits, and powers physical, intellectual and moral of organisms, have not been explained by the mechanical or chemical theory of life, but are thoroughly explicable by the Hindu theory of eternal souls.

Even Darwin acknowledged the insufficiency of the theory of evolution in the last year of his life by saying:—'If we consider the whole universe, the mind refuses to look at it as the outcome of chance, that is, without design or purpose[1].' Aristotle endorsed the view that "in all these physical things there is something wonderful." This 'something wonderful' is the soul power in the terminology of Hindu philosophy.

2. THREE ETERNAL ENTITIES

The Vedas recognize three self-existent, co-eval, eternal, non-decaying or imperishable entities which are called matter, soul and God. They are logically proved to be without a beginning and without an end. God is conceived as a Being quite different from the dead matter called *Jadam*, as well as from the individual souls called *Jivas.* Many orthodox philosophers

1. C. Darwin, More Letters, I 395.

are agreed that souls are eternal, multitudinous and distinct in their personalities. Each is bound by its own deeds or Karmas. Inspiration, expiration, shutting and opening of the eyelids, vitality, activity of the mind, affections of the senses, pleasure, pain, desire, aversion, volition, intelligence, self-illumination, activity, are said to be attributes of a soul in a corporeal frame.

(i) The Vedas have thus propounded the three eternities of matter, spirit and God: 'The two with beautiful wings (God and Soul), being fast united in friendship, embrace the same tree (Matter). Of them the one (Soul) eats the sweet berry (fruit of deeds done); the other (God) watches all the time, without eating the berry.' God is the mere spectator, while the Soul is the enjoyer[1]. (ii) The same doctrine is taught in the Mundaka and Katha Upanishads as well as in the Bhagvadgita. "There are these two beings in the world, the perishable and the imperishable: the perishable comprises all creatures; the immutable (soul) is called the imperishable. But distinct is the Highest Spirit spoken of as the Supreme Self, the indestructible Lord who penetrates and sustains the three worlds." (iii) The eternity of a soul has been beautifully expressed in the Katha Upanishad[2]. "This experiencer of pleasure and pain is not born nor does it die; it has sprung from anywhere and nothing sprang from it. It is unborn, eternal, everlast-

1. Ath. IX. 9. 20; Mund. III. 1. 1; Kath. I. 3. 1; Bhag. Gita, XV. 16-17.

2. Bhag. Gita, II. 18-19.

ing, and ancient. It is not killed when the body is killed. If the slayer thinks he has slain, if the slain thinks he is slain-both these understand not, this one (soul) slays not, nor is it slain." (iv) The remarkable verses of the Bhagvadgita (II. 20-24) on the eternality of the Self need repetition here:— (i) He is not born, nor does He even die; after having been, He again ceases not to be; nor the reverse. Unborn, eternal, unchangeable and primeval, He is not slain when the body is slain. (ii) Just as a man casts off worn-out clothes and puts on others which are new, so the embodied (Self) casts off worn-out bodies and enters others which are new. (iii) Him, weapons cut not; Him, fire burns not, and Him, water wets not; Him, wind dries not. He cannot be cut, nor burnt, nor wetted, nor dried up. He is everlasting, all-pervading, stable, firm, and eternal. (v) The famous verse of the Shvetáshvatara Upanishad (IV. 2; I. 8-9) cannot be ignored. 'The one unborn (Purusha), for enjoyment, consorts with the One Unborn (Prakriti), having the red, white and black gunas, the procreatrix of manifold progeny, like unto herself. The other Unborn deserts her, after she is enjoyed.'

3. THE EXISTENCE OF SOULS

The arguments for the independent existence of a rational soul-principle distinct from the irrational noumenon, are briefly stated below:—

(1) The myriads of things do not exist for themselves only. The insentients must serve some one's purpose. It means that they exist for the use of some

intelligent and conscious being. This principle is called Soul or Purusha, i. e., 'one who lies encased in the body.'

(2) The soul directs nature in its evolution. As a charioteer guides a chariot drawn by horses able to curvet, to prance and to gallop, so the soul guides the body. The function of superintendence and guidance in multifarious mutations is performed by the soul.

(3) The enjoyment of nature cannot be affected by intellect or any other mutation of the irrational noumenon; it is the function of the soul alone. Intellect, consciousness, mind and senses are the means to be used or perceived, and consequently imply one who perceives. The existence of an enjoyer implies the existence of both pleasure and pain. Discrimination and selection between these sensations can be made by means of intellect and the whole set of sensory organs. This act must belong to something else than matter. So the whole body is said to be enjoyed by the soul.

(4) Every one, high or low, wise or unwise, equally desires imperishable release from the succession of worldly existence or the cycle of births and deaths. As this inherent impulse cannot originate in matter, it implies the independent existence of the soul-principle.

(5) The material and irrational noumenon is characterized by impermanence and mutation. The differentiating attributes of a soul are exactly the reverse of the distinguishing qualities of matter[1].

4. PLURALITY OF SOULS

If there were only one soul animating all the

1. Sàṅkhya P. Sûtra I. 139-144.

sentient beings, all the accidents, vicissitudes and interests of existence should simultaneously affect all individuals. Kapila has laid down that the "multitude of souls is proved by variety of condition, by the birth of one and the death of another[1]." For instance, "the virtuous are born again in heaven, the wicked are regenerated in hell, the fool wanders in error, the wise man is set free." Secondly, in case of there being but one soul, at any time when one individual was born, all would have been born; when that one died, all would have died. If there was any defect in the vital organs of one, such as deafness, blindness, dumbness, mutilation, or lameness, then all would be blind, deaf, dumb, maimed, and halt; but this is not the case. Therefore, from the several apportionment of death, birth and instruments of life, multiplicity of souls is demonstrated. Thirdly, engagement in acts of virtue and the like is not observed to occur simultaneously at any one time; but some persons are busy with virtuous, others with vicious actions; some cultivate indifference to the world, and some acquire true wisdom. Therefore, from the non-contemporaneousness of occupation, a multitude of souls is concluded.

Fourthly, the multiplicity of souls is also proved from the contrary nature of qualities. Some are happy, others are in the slough of misery, others still are men of mediocre means[2].

Fifthly, there does not exist a common basis of life.

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1. Sânkhya P. Sutras, I. 149. Cf. Sh. Parva, 316. 3-6; 319. 75-77.
2. Sânkhya P. Sutras, pp. 207-223. Cf. Jainism by Herbert Warren, pp. 22-23.

The plurality of souls is undoubtedly inferred from the existence of multitude species of living creatures, and from the fact that there is inherent inequality of men and women as to happiness and misery, riches and poverty, high and low social status, and to their physical, mental and spiritual equipment, Sixthly, it will be easily admitted that the one uniform and homcgeneous principle of life cannot possess intrinsically opposite attributes of birth and death, happiness and misery at one and the same time. Birth is simply a conjunction and death is a disjunction of a soul, body and mind, and both these phenomena are controlled and regulated by the Law of Deeds (Karma). Life is invariably bound up with the existence of souls The presence of a soul gives rise to vital functions and its disappearance stops the machinery–though the corpus remains unaltered, so far as its formative matter is concerned. Therefore, the Vital Principle has no origin, it is self-existent, eternal, undecaying, imperishable, and inherently pure and free. It is chained down by its own deeds, and hence to enjoy the fruits of those actions, it now takes birth in one animal form and then in another; at last this onward struggle culminates in its victory over life and death, where it enjoys perfect rest and happiness for a considerably long period.

5. COMMON ATTRIBUTES OF ORIGINAL MATTER AND SOUL

Both souls and Prakriti are eternal, co-eval, co-extensive realities; both of them are unmanifest, disembodied, eternal, without a beginning, and without an end. They also correspond with each other in constancy, immutability, omnipresence, singleness, self-

supported entireness, immergence and supremacy or independence[1].

6. DIFFERENT ATTRIBUTES

With these common features, there are fundamental differences between the two categories. Prakriti is passive, irrational, non-conscious, non-sentient, objective, indiscriminative, common, omnipresent, prolific, eternal. This entity consisting of the three fundamental attributes of Satva, Rajas and Tamas, performs the function of the seed or the primary cause in all the stages of phenomenal evolution; it contributes the maternal element in the conception and development of the phenomenal universe and is fecundated by the soul (self-conscious subjectivity) in its different stages of evolution.

The Sánkhyas propound the doctrine that Purusha is eternal, immortal, immutable, pure, intelligent and free. Here Kapila has given the same attributes to Purusha as Shankara has done with respect to Parmátmá. There is, however, a fundamental difference. Purushas are multitudinous, while Parmátmá is only one.

The Purusha is distinct from the body including the senses, Manas, Ahankára and Buddhi.

Tha Sánkhyas also hold the theory that Purusha has no agency and that Prakriti alone is active (I. 16, II. 29). The movements of Prakriti are for the sake of Purusha (II. 46). Pradhána creates the world (II. 36-37) and this creation is for the benefit or release of Purusha (II. 11).[2]

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1. Sankhya Karika, 10, 11, 17. 2. S. P. Sutra.

A soul is devoid of the three qualities (Gunas) of virtue, action, and inertia or darkness. It is discriminative, rational, specific and unprolific; that is, it does not produce anything from itself as the prolific nature does. While matter has no discrimination and is *Achetana*-irrational, a soul is the observer or enjoyer and can discern the knowledge of right or wrong. Kapila has laid down that the quality of the soul enables it to work out its final liberation from the cycle of metamsychosis.

7. THEORIES OF THE ORIGIN OF THE WORLD

With regard to speculations on the primordial state of the world, there were numerous schools in ancient India. Some propounded the origin of the world from nothingness, void or vacuum, others from pre-existing matter, and still others from the absolute Brahman. The atheists hold that a non-existent world has been produced from a non-existent cause. The Buddhists believe that an existent world has come out of a non-existent cause. The followers of Nyáya prove that a non-eternal world has resulted from an eternal cause. The Vedántins hold that the unreal, non-existent world was produced from real and existent Brahma. The Sánkhyas advance the theory that an existent world has been produced from an existent cause.

8. PLENUM OR VACUUM

The reality or unreality of the original stuff was discussed in the oldest upanishads some eight hundred years before Christ. This view is given here on account of its close similarity with the Sánkhyan doctrine. The theory of ***ex nihilo nihil fit*** is stated in the Sankhya P.

Sutra (I. 78-81) by saying that the production of an existence is not from non-existence.

"In the beginning there was nothing whatsoever in the world. It was covered with death[1]." Opinions like these have been briefly criticized by Aruni in a passage of the Chhândogya Upanishad[2].

"In the beginning (anterior to the creation), this world was verily *Sat*–Being, one only, without a second. However, some scholars assert that "the world was '*Asat* or Non-Being' in the beginning, one only without a second and from the Non-Being or vacuum was evolved the Being or matter. How can it be? How could the Sat-plenum or matter come out of the *Asat* or void, or Non-Being? On the contrary, this universe was first plenum in the beginning, one only, without a second".

9. THE GREEKS ON THE PLENUM

Before we proceed to comment on this passage, we will present the fragments of the Greek philosophers Parmenides of Elea and Empedokles of Akragas, and see the close resemblance existing between the thoughts of Hindu and Greek philosophers. "It needs must be that Parmenides observed, what can be spoken and thought *is*; for it is possible for it to be, and it is not possible for what is nothing to be. Undiscerning crowds hold that it is and is not the same. For this shall never be proved, that the things that are not are. What is, is uncreated and indestructible." The statement of Empedokles is no less conspicuous.

1. Brihad. Upanishad, I. 2. 1.
2. VI. 2. 1–2.

"Fools! for they have no far-reaching thoughts-who deem that what before was not comes into being, or that aught can perish and be utterly destroyed. For it cannot be that aught arises from what in no way is, and it is impossible and unheard-of that what is should perish, for it will always be, wherever one may keep putting it." "From Nothing comes nothing," said Democritus, "Nothing that exists can be destroyed. All changes are due to the combination and separation of molecules." Similarly, almost in the same words this doctrine was reiterated by the Greek philosopher Anaxagoras[1].

10. ARUNI'S PLENUM THEORY

Saint Aruni, the Hindu propounder of the Plenum Theory, takes a great flight in the speculative world. He refutes the Vaiseshika doctrine of the "non-being" as well as the pluralistic theory of the fundamental elements or roots as causes of the universe. Thus he reduces these myriads of things to one and only one substance. He is only a monist and not a pluralist, According to him, in the pre-evolutionary period there was only one '*est*'-" that which is" and not many roots. Every thing in the universe from a molecule to a distant star and from the ant to the elephant, is thus a mere manifestation and transformation of one fundamental principle. The customary four or five elements of the ancients are themselves of the same primordial stuff. All matter is ultimately one. There are no independent, separate, irreducible elements, be they four or five as advocated by Indian and Grecian philosophers, nor some ninety elements as discovered by modern chemistry. All the various elements which

1. Burnet's Early Greek Philosophy, pp. 174, 207, 258.

are seemingly irreducible to some simpler matter, are ultimately drawn from one and only one essence. This coming into being and ceasing to be from one substance takes place by the process of rarefaction and condensation according to the Greek philosopher, Anaximenes, by mixture according to Empedokles, by selective transformation according to the Sánkhyas in India. The latter postulate a plurality of independent Bhútas called Ether, Fire, Air, Water and Earth, as the visible background of the world-the myriads of things result from the varying proportions in which the Bhútas are mingled

The opinion of Aruni must have shocked many orthodox believers of God, and will even now startle many scientists and theists alike.

We should pay a special attention to his oft-repeated words—" one only without a second." The *Sat* alone was the substantial and efficient cause. It did not require any co-efficients or co-adjutors. *Sat* and *Sat* alone existed, none else existed along with it He does not believe in anything other than *Sat*. If *Sat* is taken in the sense of matter, as it ought to be, the expounder of the doctrine can be called a materialist pure and simple. His *Sat* or Plenum is endowed with self-evolving power. The motor power of evolution does not come from some other source, it resides in the matter itself, as is evident from the succeeding passage. " It bethought itself; 'Let me procreate myself.' It emitted heat. That heat bethought itself; 'Let me procreate myself.' It emitted water. That water bethought itself, "Let me procreate myself".

Thus the theory developed above is that the world is self-evolved from matter. The stages of evolution are plenum, fire, water and food.

(a) The existence of *Sat* or Plenum is endowed with consciousness, will and energy.

(b) The self-moved "Being" transformed itself into Fire;

(c) Fire endued with will and energy transformed itself into water;

(d) Water endued with will and energy produced food.

It is an atheistic doctrine in its outward form, but not when the whole text is fully considered. The author of the Vacuum Theory quoted from the Brihad. Upanishad, propounds clearly that the void made up its mind: "Would that I had a self." So it went on praising. From it, while it was praising, water was produced. That which was the froth of the water became solidified. That became the earth, etc." [1]

Both Vyása and Váchaspati too have adopted this atheistic view. Prakriti has been described by them as the state which neither is, nor yet is not, that in which it exists and yet does not exist; that which is unmanifest and yet real; this Noumenon is the background of all. [2]

11. HEGELIAN NON-BEING

We must take care not to always translate 'Asat as void or nothing. It sometimes implies the non-being of *Proctus and Hegel, meaning an entity which is seemingly void, but not actually non-est.* During the period of dissolution, every thing with the Lord Himself, exists in the indistinguishable, invisible, unmanifested, subtle form, so that it is the merely impalpable and even incomprehensibly subtle essence.

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1. II. 1-2.

2. Yoga-S. B. H. IV.130; Wood—Yoga, 152.

Hence it can be appropriately called as Void or Non-Being. Though in reality, indistinct, it becomes manifest and distinct when the wheel of evolution is set in motion. In the last analysis the ultimate substratum, or the primitive substance will be reduced to an absolute abstraction, real because it is and exists, and unreal because it eludes our senses; it can not be distinguished from a sheer non-entity. If it could be distinguished, it will be an object of our perception. It will be manifest and not non-manifest. In short, in its final dissolution the primal entity or reality seems to be a non-entity or non-reality.

This idea has been beautifully expressed in the Saura Purana. "Máyá possesses neither the form of unreality nor the form of reality, nor does it partake of the nature of both. It is falselike, as it possesses practical or phenomenal unreality in the state of dissolution and at the same time also possesses phenomenal reality in the form of eternally undergoing transformation." In the Taittriya Brahman it is said that formerly nothing existed, neither heaven, nor atmosphere, nor earth. That non-existent Being resolved, 'Let me become'. The Shiva Purána says that the Pradhána was characterized by both Sat (Being) and Asat (Non-Being).[1]

According to the Váyu Purana, the unmanifest cause is eternal and is also both being and non-being. It is called by the Sankhyan philosophers Pradhana or Prakriti. It is devoid of smell, colour, taste, sound and touch. It is beginningless, endless, unborn, subtle, and is composed of the three Gunas.[2]

1. Shiva Purana, Uma Sanhita, Chap. 29. 5– 'सदसदात्मकम्.' Cf. Sh. P 321. 114–5.

2. Chap. IV. 18. अव्यक्तं कारणं यत्तु नित्यं सदसदात्मकम्.

In the Shrimad Bhágwata (II.5.22) the same point has been beautifully elaborated.

" Presided over by Purusha the disturbance of the Gunas occured (of its own accord) when the time was ripe for it, and the modification began spontaneously through its innate nature."

The Rigveda [1] thus speaks of the final dissolution or prevolution stage. " In the beginning (of this cycle) there was darkness, it was enveloped in utter darkness. It was indiscernible. It was, so to say, like water or sea. " That dull illimitable ocean without bound, without dimension existed without motion. When there was darkness, there was neither day nor night." This thought has been further developed in a passage from the Chhándogya Upanishad. " In the beginning this world, was, as if it were, Non-Being or Void. Verily, *it was existent.* It developed. It was transformed into an egg-shaped spheroid. It lay quiet for a period of one year (?). It was split asunder. One half skull-like part of the egg-shell became silver, the other half gold. That which was of silver was this earth. That which was of gold is the solar system. What was the outer membrane of the embryo, became mountains. What was the inner membrane became cloud and fog. What were the veins became rivers What was the fluid within became the ocean. Then what was born therefrom, is the yonder sun."[2]

It is easy to see that the philosopher postulates (1) the existence of something indistinct and indeterminate as the background of the world. He,

1. X. 129. 3. Cf. Taittiriya Brahmana, 2. 8. 9.
2. III. 19. 1-3.

does not recognise water, air, or any other element as the origin of the world.

(2) This something or monism began to develop of itself and assumed the shape of an egg. This conception of the spherical form of the first mass shows a great advance in speculative thought.

(3) The cosmic egg began to mature and at last was split into two parts. As its one-half is considered to be our planet earth, it is evident that the earth was looked upon as spherical and not flat in form.

(4) The conception of the transformation of the various parts of the cosmic egg into mountains, streams and seas on this earth is also original.

(5) Lastly, the idea of the birth or separation of the sun from the golden half of the spheroid is worthy of our attention.

The notion of the spherical form of the earth is beautifully conceived in the Sanskrit word used in the text. The cosmic egg is broken into two Kapálas (Gk. Kephale or Cranimus-the skull that protects the head).

The shape of the earth is like an egg or a human skull. It is easily inferable from the preceding passage that the earth, sun and other luminous bodies are not supported by any material thing, but are suspended in space without any external support. Thus the speculations of this philosopher were of a very daring character.

(7) The last part of the fragment is more allegorical than scientific, yet it shows some knowledge of the physiology of an egg. We know that the

contraction of the earth's crust (of the outer membrane of the mundane egg) brought about elevations and depressions of the sea-floor and its surface.

12. SPONTANEOUS EVOLUTION

The theory of spontaneous evolution has been propounded by many Hindu philosophers from the age of the Upanishadic speculations. Here we will limit ourselves to a few prominent opinions and take them as typical of others. (a) The Taittiriya Upanishad (II. 7.1) records that this world was in the beginning non-being or unmanifested; from it was evolved what exists, the being-the manifested. *That evolved itself of itself. Therefore it is known the Self-Evolved.'*

(b) The Brihad. Upanishad (I. 4.7) has a very significant passage on the form of the primordial matter which fully explains the word " Ásat " of the preceding passage. " All this was then Avyákrita-unmanifested, undeveloped or undifferentiated; it became manifested or differentiated by name and form.

(c) As a scent, by its mere contact with olifactory nerve, produces a mental change, so the Supreme Lord, *without any directed action,* produces vibrations in matter. As space, time etc., by the their mere presence are said to be the cause of growth, so the Lord Hari, without undergoing any modification Himself, is said to be the cause of the universe.

(d) The Saura Púrana (XXI. 28, 35) has twice significantly emphasized this very view. The gunas attain and lose their equilibrium through the influence of time [1]

1. XXI. 28. गुणाः कालवशादेव भवन्ति विषमाः समाः ।

and this creation does not require the agency of intelligence.[1]

(e) According to the Markendeya Purana the first stage of creation was made manifest through non-intelligence. It itself became manifest like lightning.[2]

13. ETERNALITY OF MATTER

J. Davies has aptly remarked that '*Ex nihilo nihil fit*' was an axiom in Hindu philosophy long before it was expressed in the schools of Europe.'[3] The Hindu philosophers were the first in this world to discover this well-known dogma of Greek philosophy and an important scientific truth of modern days. It is also praiseworthy that they applied it in the doctrine of evolution. From times immemorial this principle of the indestructibility of matter has formed the foundation of their philosophic speculations. It was not the great Roman poet, Lucretius or the immortal Lavoisier who first discovered this scientific truth, but Hindu philosophers had several centuries earlier formed it the cope-stone of their philosophical systems.

The Vedas which are the oldest monuments of literary activity, the Upanishads which present the *summum bonum* of all philosophies, the Sánkhya, the boldest speculation of agnosticism and logical atheism, the Vaiseshika school, the oldest propounder of the atomic theory, the Bhagwadgítá– the immortal song of

1. XXI. 35. अबुद्धिपूर्वकस्त्वेष ब्राह्मी सृष्टिरथाच्यते ।
2. I. 42. 73. अबुद्धिपूर्वः प्रथमः प्रादुर्भूतस्तडिद्यथा । Cf. Brahma Purana, 237. 2.
3. Hindu Philosophy, p. 110.

Lord Krishna, all have explicitly initiated this great and fundamental truth that whatever does not exist cannot be brought into existence by any agent. The classical dogma that 'nothing is created, and nothing is lost' was discovered by the Hindus. All these works and many more propound the principle of the perpetualism or Eternalism of Matter. They make the creation of the cosmos dependent upon pre-existent matter alone. The doctrine of the eternality of matter is closely allied to the modern law of the indestructibility or Conservation of Mass or Matter. The former was the outcome of deductive reasoning in that pre-scientific age, while the latter has been established and confirmed by experimental and inductive methods. Let us see how the Hindu philosophers have explicity emphasized the principle of the Indestructibility of Matter.

I. The Rigveda (I. 164.20) describes matter as an eternal tree on which two birds sit in close friendship. The one called the Individual Soul eats sweet fruits, while the other Universal Brahma looks on without eating. This verse has been reproduced in the Atharvaveda, Shvetashvatara and Mundaka Upanishads. It is now clear that the eternality of matter was propounded by the Aryan Rishis in the oldest book in the library of man.

II. The Shvetashvatara Upanishad (IV. 5) describes the three entities of matter. God and soul as eternal.

" There is one Unborn (because not an effect) (Prakriti) consisting of the three Gunas of Satva, Rajas and Tamas. Though homogeneous, Prakriti produced

heterogeneous offspring. There is another Unborn Being (Cosmic Soul) who loves her and lies by her. There is yet another Being (the Individual Soul) who leaves the Prakriti when "he has had his delight with her."

VIEWS OF THE SANKHYAS

III. An aphorism of Kapila (I. 78, 80) on this doctrine is couched in these words. "From a non-entity, an entity can not be produced."

If the cause is existent, then by union with existence, takes place the production of an existent effect; if it is non-existent, then, on account of the non-existence of any effect, how can there be the production of an effect in the form of an entity?

Thus the Sánkhyas emphatically lay down that *antecedent non-existence cannot cause existence or that nothing can alone come out of nothing,'* because, according to the author, an effect can appropriately be only of the same essential form as the cause.

Further on, it has been argued that "there can be no production of what did not exist before, *because there must be some* determinate material cause for every product; (2) because all things are not produced in all places and all times; (3) because the production of what is possible, can be only from what is competent to cause such production; and (4) also because the effect possesses the same nature as the cause.[1]

After having thus prepared the ground, Kapila proceeds to reveal the meanings of *Production* and *Destruction.* "The application and non-application of

1. Sànkhya Kárikà, 9.

the term "*production*" to an effect are occasioned by the manifestation and non-manifestation of the effect as such, i. e., *it does not connote the coming into existence of a non-existence.* Similarly, destruction of a thing means "the dissolution of the thing into its cause." The commentator has added an illuminating note to the aphorism. Destruction is, says he, disappearance merely and not annihilation; as, for example, when a thread is destroyed, it changes into the form of earth. Similarly, when the seed sown is said to have been destroyed, the earth element is changed into the cotton-tree; and this transforms into the shape of a flower, fruit, and thread again.

15. KANADA'S THEORY

IV. Then the *aphorism*[1] *of Kanada* that "substance is not annihilated either by effect or by cause," enunciates the same doctrine.

Another aphorism lays down that the non-existence of effect follows from the non-existence of cause. The commentator adds that an existent thing cannot be non-existent, nor can it come into existence from that which is not its cause, nor can it come into existence from one knows not what, nor can it come into existence from unreal things such as the horn of a hare, but from a really existing thing.

16. VYASA-VACHASPATI'S TESTIMONY

V. In their commentaries on the Yoga Sútras, both Vyasa and Váchaspati have subscribed to this doctrine.[2] "There is no existence for that which exists

1. I. 2. 1-2.
2. S. B. H. Vol. IV. Pp. 275-6

not, and no destruction for what exists. The farmer, the potter, etc. do not certainly create non-existing things.'

VI. The views of Saint Yájnvalkya on this point are no less remarkable.[1] On account of the indestructibility of nature in the matter of creation, Prakriti, which is unborn, is considered as not subject to decay or destruction. The qualities of matter are destructible, but not matter itself. The learned, therefore, call matter indestructible. By undergoing changes matter works as the cause of creation. The results appear and disappear, but not original matter. Hence also is matter called indestructible."

VII. We will now conclude this section by quoting the words of the Bhagvadgítá[2] on the point. " There is neither the production of what is non-existent nor destruction of what is existent."

17. VIEWS OF THE GREEKS

The truth of both these statements was later on realized by Greek philosophers and now by Western scientists (i) Just compare the view of Anaxagoras. " Wrongly do the Greeks suppose that aught begins or ceases to be; for nothing comes into being or is destroyed; but all is an aggregation or secretion of pre-existing things; so that all becoming can more correctly be called becoming-mixed, and all corruption becoming-separate."

(ii) Thales has said that nothing comes into being out of nothing, and nothing passes away into nothing.

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1. Shanti Parva-Chap. 319. 46-47.

2. 11. 16. The Jainas too have postulated the permanence of substance.

(iii) Anaximander supports the same view. The maternal cause and first element of things was the Infinite, the "one eternal, indestructible substance out of which every thing arises, and into which every thing once more returns"

Thus in India many ancient works from the Vedas down to the Bhagvadgítá propound the scientific truth that production is merely transformation and not the creation of new matter, and that destruction is only disappearance and not the total annihilation of matter. When matter can neither be created nor destroyed, it is evidently eternal. The subject matter remains the same, only its manifestations, transformations, combinations, modifications, permutations, emanations, transmutations, call them what you may, are being constantly varied.

In other words, from the synthetical point of view the universe is without a beginning and without an end; from the analytical point of view we have creation and destruction at every moment. The substratum is neither destroyed nor originated, only the mode of manifestation varies.

The phantasmagoric metamorphoses that so intensely arrest our attention are ephemeral, impermanent or evanescent phases of the one constant Absolute called Prakriti or the Pre-evolute.

No doubt, Greek philosophers like Thales, Anaxagoras, Democritus, Epicurus, Aristotle, and others were all agreed that it was impossible for any thing to be produced from nothing. But several works quoted above precede by a few centuries, if not millenniums, the works of Thales and his successors. Hence the

credit of the first discovery of this great scientific theory belongs to India.

18. PRIMORDIAL PRAKRITI

The great modern philosopher Bergson thinks that the main function of philosophy is to follow science in order to superpose on scientific truth a knowledge of another kind which may be called metaphysical.[1] The ultimate realities are still clothed in mataphysical fogs.

Prakriti is conceived by the Sánkhyas as beginningless and imperishable, unmanifest, formless and undifferentiated; insentient, ubiquitous, unproduced but productive, the cause-less cause of the world. It only undergoes transformations and is not subject through its countless variations to the fatal law of death. The world-ground is thus eternal or immortal, though its manifestations have ephemeral existence.

In short, the Sánkhyan Prakriti is possessed of the two main characteristics of eternity and reality, and hence is radically different from the Máyá of the Vedantists. The Yoga-Sánkhya schools are realists and refute the doctrine of the idealistic Vedantins. The latter argue that objects are but the fabrications of the mind like the fancies of a dream, and are not at all real. The Sánkhyas are opposed to this view. According to them, the objective world is present by its own power.[2] It is true that the evolutionary changes are mere re-arrangements in the form of matter. It assumes numerous appearances every second. The world is thus a constant flux of manifestation and disappearance, but this phenomenon does not make it unreal.

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1. H. Bergson-Creative Evolution, 1911 Ed, p. 208.
2. Patanjali's Yoga, IV. 14, p. 278.

A few of the preceding characteristics require explanation in terms of the Sânkhyan philosophy.

19. PRAKRITI IS UNBORN

By the formula that the root has no root, the primeval Prakriti is rootless.[1] The material cause of the universe is proved to be rootless, because, it is argued, if there be an independent preceding cause of Prakriti, of that again there ought to be a different cause and so it will recede *ad infinitum*. In view of the defect of infinite regression and non-finality, an uncaused or causeless something at the end should be stated to be the root. This some thing is by the Sánkhyas, called Prakriti, the pre-evolute. In their own words, even in the course of a succession, there must be a stop at some one point, *so Prakriti is merely a name to denote such* a point.[2]

20. PRAKRITI IS ETERNAL

Having proved that Prakriti or the pre-evolute is self-existent and unborn, the Sánkhyas conclude its eternity or indestructibility by the doctrine that whatever is existent cannot be annihilated, and what is visual disappearance, dissolution, or even destruction is only a transformation into subtler forms. *Ipso facto*, production of an effect is nothing but its manifestation, nay, an effect is merely a transformation of the cause. In other words, destruction is resolution into its cause. Whatever has cause, has beginning; and whatever has beginning, must have an end. Matter is causeless, unborn, one without beginning; therefore it ought to be without an end or eternal. On account of its immor-

1-2. S. Prav. Bh. I. 67; I. 69.

tality or indestructibility, it is evident that the mass of matter, or even energy will remain invariable.

21. PRAKRITI IS ALL-PERVADING

To establish the simultaneous causality of Prakriti or the existence of a common substratum or a single cause of the manifold, the Sánkhyas prove, its universality by remarking that "a limited entity cannot be the material cause of *all* things." From the observation of activity everywhere, the universality of Prakriti is consequently proved.[1]

The commentator illustrates this point by adding that as threads cannot be the material cause of a water-pot, infinite causes would have to be asserted for all the infinite objects severally, whereas it would be simpler to assume one universal cause. Secondly, limited things are by nature perishable.

Molecules, even atoms, etc., are combinations, and are limited in space, hence they are effects of something subtler and are not original causes. In the words of Vyása too "all effects are eternal in their intrinsic forms, but are perishable in their manifested forms." Being effects, they are perishable, but the original root-cause of evolution ought to be imperishable, without a beginning, and ubiquitous. In short, an all-pervading Prakriti alone can satisfy these conditions.

22. OTHER ATTRIBUTES OF PRAKRITI

The Sánkhyas hold that Prakriti is inactive, subtle, unconscious or non-intelligent, prolific and homogene-

1. S. Prav. S. VI. 36.

ous in all space. According to Ishwara Krishna, "the evolute is producible, perishable, finite, mutable, multiform, dependent, serving as a mark of inference, a combination of parts, subordinate. The Unmanifested, i. e, the root-cause or Prakriti is the reverse of this."

The unconscious character of Prakriti has been thus expounded in the Sushruta. The modifications of Prakriti such as the Mahat, Ego, etc, are all bereft of consciousness in as much as the cause itself, the Avyakta or the original nature is devoid of it. The Purusha or the self-conscious subjectivity, enters into the primal cause (Mula-Prakriti) or the original noumenon and its necessary effect (the evolved-out phenomena) and thereupon makes them endued with his own essence of self-consciousness. As the milk in the breast of a mother, though unconscious in itself, originates and flows out for the growth and sustenance of her child; so the twenty-four primary material principles though unconscious in themselves, tend to contribute towards the making of the self-conscious self or the universal individual (the aggregate of limited or conditional selves) for the purpose of working out his final liberation.

Thus the causal snbstance of the Sánkhyas is devoid of the attributes of sound, touch, etc; is formless; is the origin of the world; is without beginning, production and destruction. It is omnipresent but mutable. It is the subject and not the predicate. It is entire-one whole. It is universal 'this'. This undefined and indefinite something is supersensuous. This highly imponderable something cannot be perceived by

the senses. It can only be described by 'this' or 'one before the form'-Prakriti. Here we may profitably compare the view point of Plato. "This mother and receptacle of all visible and sensible things we do not call earth, nor air, nor fire, nor water, nor anything produced from them, or from which these are produced. It is an invisible and formless thing, the recipient of everything (all-embracing), participating in a certain way of the intelligible, but in a way very difficult to seize."

23. ATOMIC PLURALISM

On the other hand, the Vaisheshikas recognize innumerable atoms to be the cause of the world, which are endowed with attributes previously enumerated in the case of Prakriti. Thus the Sánkhyas are opposed to the Nyáya-Vaisheshikas' "atomic pluralism" as the ultimate cause of the origin of the world. Again, in refutation of the doctrine of the Vedántists, the Sánkhyas argue that "there can be no denial of Prakriti because the existence of Prakriti is established through her products," and 'owing to the impossibility of any other mode, production must be from the existent.' (VI. 52-3.)

24. ULTIMATE GROUND

Instead of going into the philosophic details of the ultimate ground postulated by the various schools, we will merely summarise their principles:—

Nihilists-The world is non-existent, unreal and came out of a non-existent cause or void

Buddhists-The world is existent, and real, but came out of a non-existent cause or void (what was not).

Naiyáyikas-The world is non-existent, non-eternal and perishable, but came out of an existent, eternal and imperishable entity.

Vedántists-The world is non-existent, unreal, but came out of what was existent or Brahman.

Sánkhyas- The world is existent, real and came out of the Pradhána or Prakriti which was existent and real.

The first three schools require a little explanation as they are not monists like the remaining two schools, but are pluralist-materialists.

25. THE ATOMIC THEORY

The two schools of Nyáya and Vaisheshika, the Jainas, and the four schools of the Bauddhas agree in the view of atoms constituting the ultimate material cause of the universe, and all refute the Vedántic theory of Brahman being the material as well as the operative cause of the world. They postulate atoms in opposition to the Brahman of Vedanta and to the Prakriti of the Sánkhya to be the material as well as the efficient cause.

Like their Greek successors Leucippus and Democritus, they held that matter was composed of invisible atoms, identical in substance but differing in shape and size, and that the million things and beings were due to differences in size, shape, position and movement of the ultimate atoms. [1]

Vyása defines an atom as a substance in which minuteness reaches its ultimate limit. Váchaspati explains it by saying that wherever in a piece of stone

1. Cowell, S. D. Sangraha, p. 52.

which is being divided and sub-divided again and again smallness reaches a point beyond which it cannot go, it is said to reach the limit of minuteness. Such an irreducible minimum is called an atom.[1]

These atoms aggregate together into bodies and present a bewildering variety due to differences of genus, position in space, moment of time, ultimate peculiarity and secondary quality. How truly has it been said that 'form is a manifestation of arrangement along certain lines' and thus differences of form are, *caterus paribus*, due to differences in the arrangement of atoms?

On the other hand, the Vaisheshikas emphasize the existence of distinction in millions of things due to the presence of certain ultimate peculiarities in the permanent atoms.[2]

The atomists differ from each other as to the nature of the atoms. These are held to be either fundamentally void or non-void, either having merely cognitional or an objective existence, either momentary or permanent, either real or unreal.[3] The following summary of the views will clear up this tangle:—

School		Nature of atoms
Kanáda and Gautama	—	Permanent
Vaibháshika Bauddhas	—	Impermanent, but have an objective existence
Yogáchára ,,	—	Impermanent, but more cognitional existence.
Mádhyamikas ,,	—	Impermanent, but fundamentally void.

1. Yoga, pp. 259-260. 2. Yoga, pp. 262-263
3. Cowell, pp. 14. 15. 22-23; Pioneers of Evolution p. 15.

Jainas — Impermanent, but real and unreal.[1]

These schools have not been properly studied up to this time. Their so-called dark doctrines have repelled many an orthodox believer. For ages their philosophies have been considered as 'anathema maranatha,' but in our day the main interest lies in their schools alone, as these have linked up Indian thought with Greek Epicureanism on the one hand and with the modern atomic theory, on the other. It was not the Greek philosopher Leucippus [2] or Epicurus who *first* anticipated the atomic theory, but the Hindu philosophers of the sixth century B. C. who had postulated the existence of self-existing, indestructible, irreducible and eternal atoms. The Hindus were the earliest atomists in science. The irreducible minimum of matter called an ultimate atom was held to be permanent.[3]

The eternality of an atom has been thus argued by Shankara Misra. A substance is destroyed by the destruction of the one or the other of its combinative and non-combinative causes. But the ultimate atom contains no parts, hence both of these causes do not belong to it. There being nothing to destroy it, it is not liable to destruction.[4]

It is also objected that there is no more proof of the existence of the ultimate atoms themselves than the substance-ness of which is being proved It is said that by dividing a body into smallest units we reach a stage when the substance cannot be further divided.

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1. Vedanta Sutras, p. 237. 2. Pioneers of Evolution, p. 15.
3-4. Kanada Sutras, pp. 22, 61, 62.

Such a unit is known as the ultimate atom. If the relation of a part and its whole were unlimited, then the mountain Sumeru and a mustard seed, will have the same measure of mass, because in that case they would resemble one another in possessing infinite parts. Moreover, without any difference in the number of constituent elements, measure and magnitude, mass and volume do not cause the difference of measure. Consequently, the difference of mass is caused by the different number of atoms in substances. Such an atomic theory postulated the indivisibility of an atom mechanically and not chemically. Yet the immense importance of this discovery can be adjudged from the remarks of Prof. Gomperz.

" None of the ideas that antiquity has bequeathed to us has had a greater or even a similar success. Nor is the modern atomic theory a mere sister-doctrine to that of Leucippus and Democritus; it is rather its direct descendant, flesh of its flesh and bone of its bone. It is difficult to determine how far Galilei, the founder of modern natural science, who was certainly acquainted with the teachings of Democritus, was influenced by them, and how far he thought out anew for himself some of their fundamental principles. But we know that Rene Descartes was obliged to meet the reproach that that portion of his theory was nothing but a "patch-work of tags from Democritus." and Pierre Gassendi, the French dean and prebendary, who finally introduced the atomic thecry in modern physics, was directly inspired by the study of the teachings, writings and the life of Epicurus, who walked in the footsteps of Leucippus and Democritus, and contributed

very materially to their better understanding and appreciation."[1]

Is it not probable that the Greek philosophers should have received inspiration from their Indian predecessors ?

It is to the eternal credit of the Hindu philosophers that they first foresaw the theory of the development of life from the formless stuff to the highest types by the fortuitous aggregation of infinitesimally small particles of matter. Some of them ruled out of order spirit and supreme soul or every other kind of supernatural force or Being as an intervening agent for creation. They postulated spontaneous creation and generation from the combination of self-evolving atoms alone. They were undoubtedly the most stimulating and suggestive physicists of the ancient days.

To them will always belong the immortal glory of having for the first time worked out the physical theory of life. Like Lamarck they maintained that all the phenomena of life depend on mechanical, physical, and chemical causes which are inherent in the nature of matter itself.

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1. Greek Thinkers, pp. 329-330.

CHAPTER V

PRAKRITI AS ENERGY

" In the ocean of phenomena, science can only pick out what is accessible to it. At bottom, mechanics, which seems to be the most precise of sciences, the one most foreign to metaphysics, is the one which contains most evident or hidden metaphysical notions." *Dr. Gustave Le Bon*[1]

The character of the first cause remains enshrouded with mystery in spite of numerous commentaries on the nature of the Sankhyan Prakriti. The problem to be solved here is whether Prakriti is the three Gunas or the Gunas are only attributes of something called Prakriti. The properties of a thing do not form the thing itself. They are merely attributes of its matter which has assumed a peculiar shape. Similarly, the problem whether the three Gunas which are forms of energy in mechanical as well as spiritual terminology, form the Prakriti or whether they are only properties of the primitive matter, appears to be difficult to be decided. The following data will, however, conclusively clear up the issue.

1. SIGNIFICANCE OF PRAKRITI

(1) Prakriti has been defined as *Sattva rajas tamasam samayavastha Prakriti.*[2]

The static state or the equilibrium of the three Gunas known as Sattva, Rajas and Tamas, is called Prakriti. Thus it is not the genus of which the Gunas

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1. The Evolution of Forces, pp. 34, 28.
2. Sankhya Pravachana, I. 61. सत्त्वरजस्तमसां साम्यावस्था प्रकृतिः

are the species. It is nothing else but the Gunas. It is rather an *est* of which Gunas are the factors or elements, but not attributes, features or properties.

(2) The Tattva-Samása[1] has the word *Traigunyam* instead of Prakriti, meaning that the state of the equilibrium of the three Gunas is the primal cause of the world.

(3) The Sánkhya Káriká and Panchashikhá[2] too use the word Triguna for Prakriti.

(4) But one important aphorism of Sánkhya-Pravachana-Sútram smashes all doubts on the point. It is said that Sattva and the rest are not the properties of Prakriti, because they are the form thereof.[3]

(5) Another aphorism is even clearer than the preceding one:[4] Sattva, Rajas Tamas–these very same are remembered to be Prakriti.

(6) In another it is said that Prakriti is devoid of sound and touch, and is unconnected with form and the like. It is constituted by the three Gunas, is the origin of the world and is without production, development and destruction.[5] The commentary on the preceding aphorism unmistakably clarifies the issue. "Gunas form the very essence of Prakriti, they are not the properties thereof. For, then, should the triad of Sattva, etc. be the property of Prakriti in the form of being her effects, or should they be just the eternal property of Prakriti by reason of mere conjunction with her, just as is the air in the case of the sky? In the first

1. I. 11. 2. Aph. 7. 3. Sankhya Pravachana, VI. 39.
4. सत्त्व रजस्तमइति एषैव प्रकृतिः स्मृता ।
5. Sankhya Pravachana, p. 100.

case, there is the impossibility of the production of three diverse Gunas or qualities without the association of Prakriti with another substance and there is also the impropriety of the supposition of what is contradictory to what is seen. In the last, since all diverse effects can be accounted for from the very eternal Sattva, etc by means of their mutual association, there is the futility of the supposition of Prakriti in addition to them.[1]

(7) Elsewhere in the commentary on I. 61, it is repeated that Prakriti is the triad of Gunas, and not a different entity which is their substratum. It comes to this, that the triad of Gunas in so far as it stands apart from effects, is Prakriti.

(8) Again, it is postulated that Sattva, Rajas, and Tamas–these three Gunas form the Prakriti. It is these alone; that is, it is constituted by them.[2]

(9) In another place it is declared that Gunas are the causes of the world and are collectively called Pradhána or Prakriti[3].

(10) The Vishnu Purána says the same thing. The combination of the three Gunas is devoid of sound and touch, and is unconected with form, etc. That is the origin of the world, and is without beginning, production, and destruction.[4]

(11) The equilibrium of the three gunas, without excess or deficiency, is called Prakriti, origin (Hetu), the chief principle (Pradhána), cause (Kárana), supreme (Param). This Prakriti is essentially the same, whether

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1-3. Sankhya Pravachana, pp. 115, 184, 542.

4. Vishnu Purana, I. II. 20-21.

discrete or indiscrete, only that which is discrete, is finally lost or absorbed in the indiscrete.[1]

(12) The Bhágwata Purana ascribes the evolution of all elements, intellect, etc. to the inequilibrium of the Gunas alone.[2]

(13) The commentary on the Yoga Sútra III. 13 is remarkably clear on the point. "It is the nature of the Gunas that they can not remain even a moment without the evolutionary changes of *dharma*, *lakshana*, and *avastha*. Motion is the characteristic of the Gunas. The nature of the Gunas is the cause of their constant motion."

We have rather multiplied the quotations, because much depends upon the right interpretation of the important formula If Prakriti is nothing but a condition, a state of equilibrium of forces (Gunas), it means that the final cause is nothing but energy. But if Prakriti is 'something' wherein the state of equilibrium is produced by the neutralisation of the three Gunas, then it is both matter and energy reduced to their subtlest form. One leads to the monistic interpretation of matter, the other to the well-known dogma of the duality of matter and energy, mass and motion, mass and power in their final form.

The preceding assertions unanimously force upon us the first conclusion which posits the pre-evolute to be simply a state of equilibrium of the three Gunas and to be the substratum of the worlds and of the beings evolved from it.

The implications of this doctrine are pregnant with remarkable consequences. We are led

1. Vishnu Purana IV. 4. 33-34.
2. II. 10. 2.

(1) to give up our conceptions of an irreducible and indestructible matter consisting of eternal atoms; and to admit

(2) that matter is dematerialized into forces or energy;

(3) that this energy is changed into matter and *vice versa;*

(4) that just as electricity, magnetism, heat are mere forms of energy, so intelligence, mind, ego, senses, nervous forces, are also forms of the same primal energy. The psychical forms, owing to different combinations and vibrations differ from the material or physical forces only in degree, being modes of the Gunas;

(5) that there is no inherent gulf between the two realms of *Psyche* and *Physis*-they emerge from and merge into one common source. Le Bon says that up till now we have found no bridge capable of linking together these two orders of phenomena and the gulf which separates them appears yet deeper if among the vital forces we include the psychical phenomena which end in intelligence. The Hindu systems have already bridged the yawning chasm through speculation, though not by science. The Sánkhya system opens up new vistas, it may not throw enough light to illumine the immensity of many mysterious abysses or afford keys to open up the hidden doors of psychology and science, but it does postulate something ultra-material to be the starting point ot both psychical and physical worlds.

Let it be remembered that the procreatrix-Parkriti in its evolutionary stages branches off into two distinct categories of psycho-material entities and insentient

material substances. Intellect, egotism, mind, the five sensory organs, the five motor, organs, the nervous system fall in the first division. The five subtile elementals and their products are included in the second category. In other words, the first subtle form, product or manifestation of the formless pre-evolute is Mahat. This gives rise to egotism. This in its turn branches off into two far-removed categories. On the one side, it manifests itself into mind, sensory and motor organs, and on the other into subtile and gross elements. It is consequently evident that according to the Sánkhyas, intellect, egotism, mind, and the sensory organs are material manifestations of the original matter which in its grosser forms shows itself as ether, air, light, water and earth. These five by their mixture give rise to all corporeal things and beings.[1]

2. PSYCHICAL NATURE OF PRAKRITI

Further, it is a fundamental postulate with the Sánkhyas that like produces like or that there is an identity of the cause with its effect. *The psychical nature of some of the products, effects or manifestations of matter, must, therefore, be traced to the radical pre-evolute Prakriti.* This must be endued with those psychic qualities. The existence of the three qualities in the procreatrix in static condition is consequently postulated, which on the violation of their equipoise through the impelling proximity of the Purusha set the ball of evolution rolling. Pre-evolute static gunas become dynamic through the upsetting of their equilibrium. These form the potent and original cause of producing the

1. Cf. Deussen-Philosophy of the Upanishads, 239-255.

psycho-material substances. Their properties in these two aspects can be stated thus:—

1.	*Sattva*	*Rajas*	*Tamas*
2.	Agreable	Disagreable	Indifferent
3.	*Priti* Affinity	*Apriti* Disaffinity	*Vishada*-Dullness or Stupidity
4.	Prítí--Sukha-Pleasure	Aprítí-Dukkha-Pain	Vishāda-Moha - Delusion
5.	Calm	Passion	Stupefaction

The Chandriká explains Prítí, etc. as follows:—

Priti— is said to comprise rectitude, gentleness, modesty, faith, patience, clemency, wisdom.

Apriti— implies pain, hatred, violence, envy, abuse, wickedness.

Vishada— or insensibility comprehends also tardiness, fear, infidelity, dishonesty, avarice, ignorance. [1]

Whenever any one of these preceding traits of character is observed, it is referable to the corresponding quality. It is clear that affinity, repulsion and inertia are not taken in their chemical senses, but imply only some psychological and physical attributes. How these psychological characteristics become the functions of matter, how these three sets of attributes can exist independently of each other, how the one set preponderates over the other, these and other allied questions are not yet clear.

It is to be remembered that the Gunas inhere in each modification of Prakriti from Mahat to Mahábhútas. Even every atom of the organic and inorganic nature

1. Cf. Shanti Parva, chapter 306.

1' Chapter V. 8-11. 2. II. V. 22.

is endowed with some preponderant Guna, as Prīti-likes and Aprīti-dislikes.

The attractions and repulsions, or likes and dislikes of the constituent atoms, become visible in the inorganic and organic bodies composed of the five elements. Every particle is endowed with some amount of vital energy which in the inorganic may be so low and subtle that the highly sensitive instruments invented by Sir J. C. Bose alone can detect their response.

The commentaries of the scholiast make it absolutely evident that the theory of Gunas does not throw any light on the chemical basis of matter, but supposes the substratum of Prakriti to be psycho-physical.

The physical aspect is supplied by such an interpretation as:

Manifestation	Activity	Restraint
Rest	Motion	Inertia
Affinity	Repulsion	Inaction
Manifestation over others.	Action over others.	Resistance to others.

We are told that *the qualities combine with one another like binary atoms*. They depend upon each other and consort together. Sattva is the consort of Rajas, Rajas of Sattva and both of Tamas. They are supplementary to each other— अन्योऽन्य: वृत्तयश्चपरस्पर सहायइत्यर्थ: । They are reciprocally present.

Attachment and aversion of the psychic plane become the forces of attraction and repulsion of the insentient matter. Thus they are different modes of expressions of the same fundamentals. Herein we find the important doctrine of the basic unity and convertibility of human energy and natural forces.

These properties have positive existence in the Gunas; that is, pleasure is not the mere absence of pain; pain is not the mere absense of pleasure, as negatives could not be essential ingredients in anything. Pleasure, pain and insensibility and their mechanical modes are therefore positive entities.

3. PHYSICAL NATURE OF PRAKRITI

The mechanical interpretation leads us to the conclusion that the three Gunas either refer to action, re-action and inertia or to rest, motion and inertia; while all other meanings show their psychic nature. The interpretation is suggested to me by the explanation of Prakriti given in the Panchashiká-Sútram. It is said that the Pradhána, the material cause of all manifestation, would become what it is not *if it tended only to rest,* because in that case there would not be any manifestation into phenomena; nor would it be what it is; if it were to remain in constant motion, because in that case, the phenomena would become eternal and never disappear. It is only when it tends to both these states that it can be called Pradhána, not otherwise.[1] Rest and motion are both inherent in matter, but the third attribute of inertia too is present. Their presence in equal quantities leads to the quiescence or unruffled passivity of the cosmos.

Inertia was considered to be a force by Newton who was the first to scientifically study it. "The force which dwells in matter," says he, 'is its power of resistance, and it is by this force that every body perseveres of itself in its actual state of repose or of movement in a straight line.' " If there were no inertia or

1. S. B. H. Vol. I. P. 16.

resistance to movement, bodies will simply take the velocity of the masses striking them, and would not be destroyed by them." Whether we take Gunas in their physical or psychical sense, it is these alone which by their manifold mutations and mixtures produce various phenomena in the mental, moral and physical worlds. There is no inseparable and insurmountable gulf between these worlds. They are variants of the same world-ground.

Now these Gunas are supposed to possess both an objective and a subjective existence. No word in English can adequately express the full idea of the word Guna. Gunas inhere in all the manifestations of Prakriti. They persist through all the transmutations of the pre-evolute. Each one of the Tatwas of the Sánkhyas whether psychical or physical is constituted of more or less of these three Gunas.

The Sánkhyas are positive on the point that all phenomenality is the result of the disturbance of the equilibrium in which the three Gunas are held in the pre-evolutionary state. This is a remarkable anticipation of Bon's statement:—

" All phenomenality is nothing but a transformation of equilibrium. When the transformations of equilibrium are rapid, we call them electricity, heat, light, etc.; when the changes of equilibrium are slower, we give them the name of matter." [1]

The Vishnu Purána (V. 8-11) suggests a very illuminating interpretation. It is said that at some point of time Sattva and Tamas were in the state of equilibrium.

1. Evolution of Matter, p. 11.

These two developed and manifested each other. The equipoise of Gunas results in the inactivity of the dissolutionary period, their inequilibrium sets in evolution. Just as oil exists latent in the sesamum seeds or butter in the milk, similarly in the Tamas and Sattva, *the Rajas existed in a latent form.* This state was distrubed by God through the highest contemplation.

From the agitated Pradhâna came out Rajas. This Rajas is the impeller as water is in the case of seeds. That is, without Rajas-activity-there can be no crea tion as without water no seed can sprout up into a plant or tree. After attaining to the state of inequilibrium, the gunas are made manifest through the agency of the Lord. The Tamas represents the force of disintegration, Sattva that of maintenance and Rajas that of evolution. The negative and positive forces, being in equipoise, could not give rise to any activity. It is only the predominence of the one or the other which produces movement or activity. If Sattva predominates over others, the evolutionary process continues, otherwise the forces of disintegration or dissolution begin to operate. Activity manifested in the evolutionary process is the result of the upsetting of the original balance.

The idea of Rajas being activity is clearly expressed in the Bhágvata (II. V. 22) thus: The manifestation of Mahat was due to action (Karma) consequent on the disturbance of the balance between Sattva and Tamas.

Modern science is drifting to these very ideas.

Prof. E. Ray Lancaster speaks of the existence of three possibilities of Balance, Elaboration and Degener-

ation in every material structure. These words are equivalents of Sattva, Tamas and latent Rajas in the form of equipoise of the two opposite forces.

Dr. Hall postulates a Creational Principle or Formalising Energy and a Dissolutionary Force as the two underlying but mutually opposing forces of the world of matter. He not only recognizes Sattva and Tamas, but bids farewell to the regions of science in explaining the nature of his creational principle and ends in oriental mysticism. " As to what this really is it is only necessary to state that we can know no more of it, probably never will know more of it than we do of ' Life ' or ' Humanity , ' until we are delivered as it were, from the shackles of the body ", from our prison range of observation, perception, and rationality."[1]

4. UNIFICATION OF ENERGY

We now know that all forms of energy are more or less inter-changeable. Heat produces motion and motion produces heat. Light is electro-magnetic in its nature. Electricity gives rise to magnetism. Then comes the remarkable discovery of Einstein that gravitation is in line with other powers. Thus heat, light, electricity, magnetism and gravitation form one series of energies. It is not improbable that in near future the unification of the physical and psychical energies be definitely proved. It stands to reason that if all matter is reducible to some one elementary form, all the diverse forms of energy too are ultimately one.

All forms of energy are inter-convertible and there is a constant circulation of energy in nature. Human energy passes out of the body in straight lines and is

1. Human Evolution, p. 13.

partially deflected by a magnet. It can be refracted by a double convex lens. If the hands are wet, no energy is discharged and dry hands discharge more energy than moist hands. Similarly, less energy is discharged in humid than in dry air.

When science and philosophy will recognize the unification of energies and of matter, they will inductively be proving what the founder of the Sánkhya philosophy saw with a flash of inspiration.

5. CONSERVATION OF ENERGY

Lord Shuka taught the popular belief of the eternality of energy by saying that the three gunas of Sattva, Rajas, and Tamas appertain to Prakriti and not to a soul. There is neither simultaneous increase nor simultaneous decrease in them. Thus Constancy of Energy is the fundamental dogma[1] of the Hindu philosophy

Shuka should be called the precursor of H. Von Helmholtz, the first modern formulator of the doctrine of the conservation of energy.

6. SUMMARY

To sum up. It must have been evident now that it is incorrect to translate Prakriti as matter, even primordial or original matter. The Pradhána of the Sánkhyas is not conceived as matter at all, but as latent enengy alone. Kinetic forces in equipoise neutralize one another and hence assume a static or latent condition. The monastic interpretation of Prakriti as matter is untenable in the face of reasons advanced above.

The doctrine of the duality of energy and matter is also rejected. Gunas do not inhere in Prakriti-matter, but are themselves Prakriti.

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1. Shrimad Bhagavata, VII. 1. 7.

The monastic doctrine of Prakriti as Equilibrated Forces is postulated here. The triad of forces is the First Cause of all sentient and insentient worlds. These in their multi-millioned forms are nothing but transformations of the triad of Gunas.

The psychical apparatus of sentient beings is a form of energy and so is matter a mode of energy. The matter of chemists and physicists may be regarded as composed of eternal and irreducible atoms, but according to the Sánkhyas it is far removed from the pre-evolute. This is a transformation of the five Bhutas, they, in turn, of the Tanmátras, these, of Ahankára which is a mode of Mahat-this is a modification of the Gunas whose equilibrium has been disturbed by the proximity of Purusha. Thus the matter of chemists by passing through several stages of dematerialization, is reduced to the triad of forces and these in the process of evolution materialize in the forms of matter, as conceived by modern science. Such a process of evolution is constantly going on and on, but when the triad of Gunas assumes the neutralization state, the dynamic energies become static or latent and then there is an end of the world.

This triad seems to be rest, motion and inertia in the mechanical form, but attachment, repulsion and stupefaction in the psychical planes. Human energy and physical forces being modes of the same Gunas are convertible into one another. There is a basic unity underlying them. It is to the lasting credit of the Sánkhyas that they were the first to discover and postulate the doctrines

(1) that matter is resolvable into energy; hence there is no ultimate conservation of matter as postulated by modern science and Hindu philosophers;

(2) that there is an ultimate identity of psychical and physical worlds, a doctrine whose truth is not fully recognised by western savants as yet;

(3) that these worlds of Psyche and Physis are transformable into one another;

(4) that the cosmos is a spontaneous evolution, requiring no divine intervention throughout the evolutionary or devolutionary processes;

(5) that the two processes of energy being materialized and of matter being dematerialized are ceaselessly and synchronously taking place during the whole existence of the cosmos.

Thus in a far remote antiquity did the oldest school of Hindu philosophy boldly anticipate some of the latest scientific researches of the West.

CHAPTER VI

COSMIC EVOLUTION

'Evolution is an integration of matter and concomitant dissipation of motion, during which the matter passes from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity; and during which the retained motion undergoes a parallel transformation'. —*H. Spencer.* First Principles, p. 142.

1. THE SANKHYAN MONISM

It has been proved that all existence, both material and mental, and all phenomena both objective and subjective, are different modes of manifestation of the one Prakriti. Consciousness, egoism, mind, thought, sensual impresssions, and all forms of material existences on this planet and in all the worlds within and beyond our ken, are epiphenomena, developments, offshoots, phantasmagoria of one ubiquitous unity which is beyond our apprehension, and hence it can simply be called the "Ante-form" of matter and energy. The Sánkhyan system bears analogies with the materialistic monism of Tyndall, Haeckel and others. Although Kapila postulates Purusha as the Psychic Being to quicken the substance, yet its role is merely passive. Hence the dualism of Kapila is tantamount to Materialistic monism.

It is now clear that according to Hindu philosophy the evolution, production, creation or emanation of the world is a mere integration, accumulation or aggregation of subtle into less subtle or more complex entities.

Every thing as well as being in the world is a modification of something simpler and subtler, so that

ultimately all are reducible to the one subtlest substratum. It has been beautifully reasoned out in the Panchshikhá Sútram that the primordial matter is the same everywhere. On account of the absence of the difference of form, absence of intervening space and time, and of genus there is no separation, vacuity or variety in the procreatrix. It amounts to the one continuous, indivisible plenum of Parmenides who held that 'all things were one, *at rest in itself*, having no space in which to move'.

A disturbance in the equipoise of the neumenon of the three Gunas, starts all phenomena. The whole progress of cosmic evolution is spontaneous or a reflex action. Consciousness, mind, the whole psychical organism of man, the subtle essences of material forms, the invisible bodies of the deities, and all the visible forms of sensuous existence proceed directly or indirectly from the one supreme source of the eternal Gunas.

Without involving any meta-natural power or divine interference with nature, the Sânkhyan theory, of course, excludes the possibility of revelation, inspiration, Entelechy, Elean, miracles and grace. It strikes at the root of the idea that the world is divine in its origin, divine in its continuance and divine in its progressiveness. All the awe-inspiring gods and demons, the faineant divinities, all the sentient and insentient things, even mind and ego are alike composed of the same meta-material stuff.

This mechanistic dogma of mechanical evolution deserves deep study for another reason also. It presents a universal correlation of the world and annuls the fatal gulf between the material and immaterial.

2. VARIOUS STAGES OF TRANSFORMATION

The unmanifest Prakriti being impregnated with dynamic [1] energy through the disturbance of its equilibrium transforms itself into

(2) Mahat—Impersonal consciousness.

(3) Ahankára—consciousness.

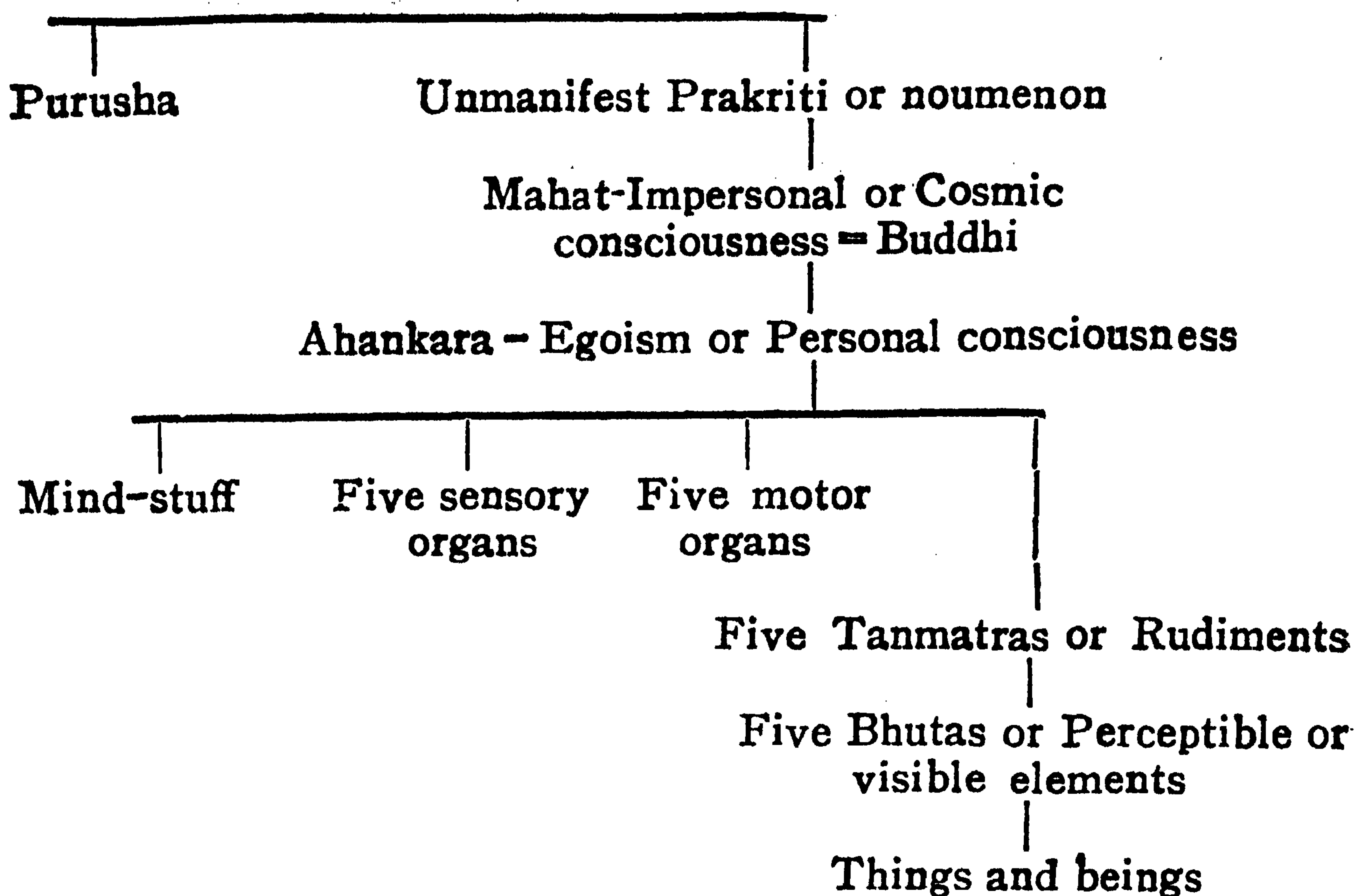
(4) From Ahankára emanate the two categories of psychical and physical principles. The first division comprises the eleven principles of cognition, communication and preception, i. e., the five sensory organs, the five motor psychoses and the eleventh the mind-stuff or the sensory-motor organ.

(5) The Támasika aspect of consciousness gives rise to the five elementals (Tanmátras) and they, each in its own turn, give rise to the five gross matters of space such as ether, air, fire, water, and earth. Each Tanmátra separately forms the radical of its gross transformation.

Avyakta, Mahat, Ahankára, and the five elementals on account of their most subtle nature are also called the eight primordial categories; while the eleven sense-organs, and the five gross elements are known as modifications (Vikáras) of Prakriti. These are the twenty-four categories of the Sánkhyas by which they have sought to explain the evolution of organic as well as inorganic, sentient and insentient existence, astral and physical bodies, superhuman, human and sub-human beings. The Sánkhyan order of cosmic evolution can now be presented thus:-

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1. Cf. Dr. Seal, Positive Sciences of the Hindus.



3. *Mahat or Buddhi* is the first modification of the noumenon. This has been rendered into the 'cosmic matter of experience' by Dr. Seal, but this interpretation is open to objection. It is desirable to understand the term in the sense of the subconscious or subliminal self of an individual or the impersonal consciousness in the cosmos. The world passes from the dark night of dissolution and sleep into the dawn of regular consciousness which in time further develops into personal Egoism. The Sattva-Guna is specially separated and developed into Buddhi, so it is endowed with calm, bliss, pleasure, and other attributes of Sattva. The Purusha in this stage is particularly illuminated, but at the same time is blissful and unmoving. It is not desirous of activity.[1] The subtle, calm, and neutralized state of forces which were in deep sleep during the period of dissolution, undergoes *vikshobha* or disturbance through

1. Kashmir Shaivism, p. 108.

the approach of Purusha and is characterised by an illumination due to the pre-dominence of Sattva. The other Gunas remain in a comparatively subdued condition. This pure intelligence, is, after a time, modified into the other principle of Ahankára. Buddhi, being the product of Sattava *par excellence*, conveys the idea of Satta--mere existence or presentation only. It is termed 'Pure Be--ness,' or the great principle of the undifferentiated noumenon.

It is described as the 'Great Atmá' with the object of denying its smallness by showing that it constitutes the very nature, the very being of all modifications. In this principle resides the determining energy of all further manifestations. The Mahat is so termed as it is the first evolute of Prakriti, the first manifestation of the pure principle of Sattva, and also as its extension is greater than that of the rest.

At this stage each individual soul becomes vaguely conscious of himself and the world. The knowledge of subjective and objective existence dawns upon every self. Mahat represents the first form of the energy of knowledge, because full conception of the individuality of the self and others is attained in the next stage of Ahankára.

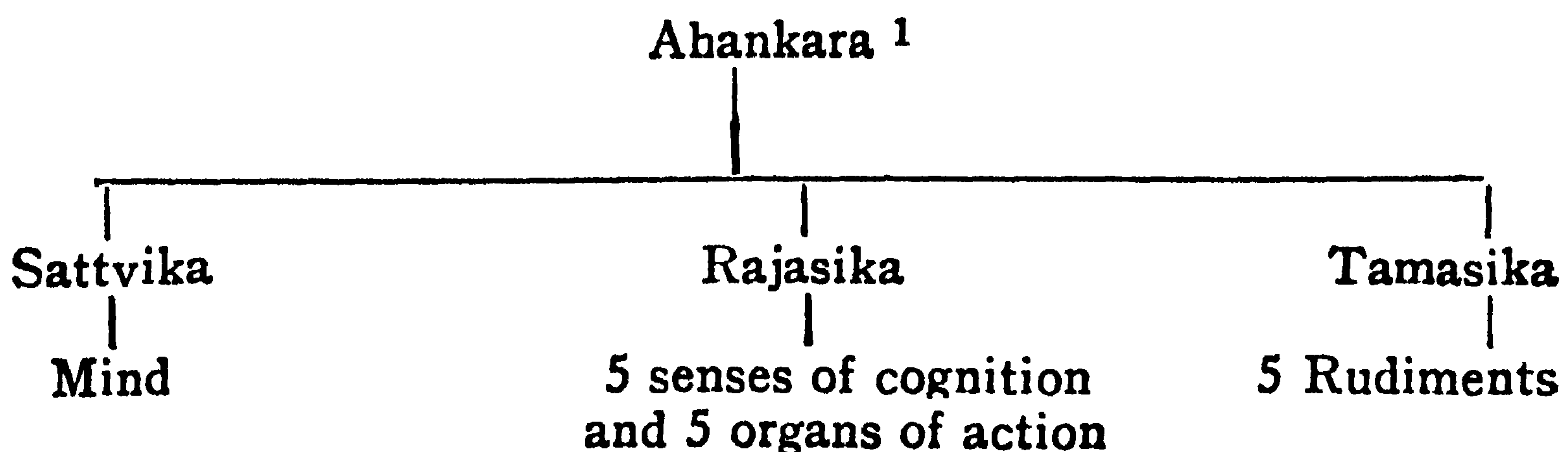
4. *Ahankara,* according to V. Bhikshu, is the Antah-Karana, the inner sense. This, in-as much-as a property and the thing of which it is the property are indivisible, has been spoken of as *abhimana* or self-consciousness, in order to give the hint that self-consciousness is its specific function. When an object has been previously ascertained or realized in a general or abstract way to be this or that, the further process of making the 'I' and the 'Mine' takes place.

It is the stage of self-arrogation or the state of self-realization as the personal Ego. Hence, Ahankára succeeds Buddhi in the evolutionary process. It is the experience of ' this is mine ' or ' I am this ', or ' I am so and so. '

The process of selection, particularization and appropriation or identification with self is Ahankára. It may be called Egoism, Egotism, Personal consciousness or self-apperception.

Váchaspati interprets Ahankára thus:—"The pride or conceit of individuality, self-sufficiency, the notion that 'I do, I feel, I think, I am, I alone preside, and have power over all that is perceived, and all these objects of sense are for my use. There is no other supreme entity except this ego, I alone am. This pride, from its exclusive application, is Egoism."

Ahankára too is three-fold in its nature and its three types give birth to three different products. The whole process of modifications can be presented in a tabular form:—



It does not mean that in Mind, the Rajas and Tamas Gunas do not exist at all. They do subsist in Mind in a suppressed condition or under the domination of the Sattva Guṅa. The same remark applies to

1. Sankhya Karika, XXV, and Sankhya P.Bh. Pp. 249-252.

the other manifestations. In them one particular Guna is patent, the other two gunas remain latent.

5. THE MIND

The Mind lies between Ahankára on the one hand and the senses on the other. It is not a part of the soul, but it is a form of Purusha-Prakriti and has its genesis from a psycho-material source. The association of mind with the organs is alone the cause of perception and determination. It has been justly stated that the first sensation or perception is simple, like the knowledge of a child, a dumb man, or the like-it is produced by the mere thing. It is absolutely uncommunicable. After this, the thing distinguished by its properties, by its genus and the like, is selected or singled out from the whole mass of sensations. When this sensation-image is identified by the understanding, and intellect is in accordance with perception, that period of determination shows the operation of the mind.

In this way mind is an organ both of perception and action; it perceives the objects presented by the senses and actively forms them into positive ideas. It descriminates and defines a thing by its specific or unspecific nature. Ideation and imagination are its attributes. Without the association and co-operation of the mind, no impressions or sensations can be formed, though the organs may be at work in the world of sensations. It has been distinctly declared in an Upanishadic text- " My mind was elsewhere. It did not hear."

The same illustration of absent-mindedness has been used by Locke. ' Perception is only when the mind receives the impression.' Yájnavalkya has beauti-

fully expressed the relation of the mind to the senses.[1] It roves over all things guided by the senses. These do not perceive anything. It is the mind that perceives through them. The eye sees forms when helped by the mind but never by itself. When the mind is distracted, the eye cannot see fully even the object before it.

When the activity of the mind is stopped, the activity of the senses is also stopped. One should thus consider the senses to be under the control of the mind. Indeed, it is said to be the lord of all the senses. Vyása differentiates between mind and understanding by attributing the properties of patience, reasoning, remembrance, forgetfulness, imagination, endurance, inclination towards good, inclination towards evil, and restlessness to mind; and those of decision, ascertainment, concentration, perseverance and destruction of both good and evil thoughts to understanding. To sum up, mind has doubt for its essence, while the understanding discriminates and produces certainty.[2]

The nature of mind in the Vyása Commentary[3] is of a great philosophic importance. The mind has two kinds of characteristics, the conscious, patent or Paridrishta and the unconscious, latent or Aparidrishta. Of these the patent are those that appear in consciousness as notions and the latent are those that are but the substance itself. They are seven only and it is by inference that their existence itself has been established. 'Suppression, characterization, potentialization, constant change, physical life, movement, power are the characteristics of the mind, besides consciousness.'

1. Shanti Parva, 312. 16-20.
2. Shanti Parva, 225. 9-10; 252. 11.
3. Yoga Sutras, III. 15.

The Chárvakas and Bauddhas regarded both mind and consciousness as an excrescence or epiphenomenon, having no real existence in themselves but only appearing as a result of a peculiar kind of material integration. Kapila struck a happy mean between the two views.

It appears that this Sánkhya doctrine is an accommodation between the two mutually exclusive doctrines of the Stoics and Platonists. The former expressed mind in terms of matter, the latter expressed matter in terms of mind. The Sánkhyas express both mind and matter to be variants of the same ultimate substance. How a soul in combination with a certain aspect of unconscious matter becomes modes of consciousness, intelligence, mind, organs, etc., may not be intelligible to us, but this is the doctrine developed by Kapila.

In this connection the verdict of Sir O. Lodge deserves quotation.[1] 'The universe we are living in is an extraordinary one; and our investigation of it has only just begun. We know that matter has a psychical significance, since it can constitute brain, which links together the physical and the psychical worlds. If any one thinks that the ether, with all its massiveness and energy, has probably no psychical significance, I find myself unable to agree with him.'

6. NERVE FORCE

It is stranger still that in the Sánkhya system the five vital 'airs' are a product of the common or joint action of Buddhi, Ahankára and Mind.[2] These have a common physiological function to perform and that is the maintenance of the five vital 'airs. These last are

1. The Ether of Space, p. 114.
2. Sankhya Karika, XXIX.

not modifications of elemental air, but some subtle inward forces necessary to vitality and independent of sensation. They are called 'airs' on account of their having peculiar movements like those of air. In fact, Prána is neither air, nor any function of air. It is a nerve force as is clear from the teachings of Sushruta who calls it self-begotten in its origin. It determines the genesis, continuance and disintegration of all animated organisms. It alone propels all the deranged or obstructing principles in animal organisms. It is instantaneous in its action and courses through organisms in constant currents. It tends to maintain an uniform state in the metabolism of the body, and helps the organs of sense-perception in discharging their specific functions.

"Its special feature is that the vibration that is produced in it, instead of travelling like light in a transverse direction, takes a course as the controller of the correlative function of the system. In short, the term Váyu may not only be rightly interpreted to mean nerve-force but is often extended to include any kind of electro-motor or molecular force."[1]

Wherever and whenever there is breath, the organs come to possess life. Breath, like a bird in a cage, gives motion (vitality) to the whole.[2] This never-force is grouped under five heads according to the difference in its functions and location. These correspond to the division of functions.

Prana [3] is the energy of the nerve centre in the

1. Sushruta I. XLII; II, 1-7.
2. S. Karika XXIX.
3. Sushruta II. 3-5; Shanti Parva, Chap. 185. Cf. Shanti Parva, Chap. 219. See Ballantyne—S. Karika, pp. 139-141; Sh. P. 329. 33-47. Yoga Sutras III. 38.

nedulla. It is located in the mouth. It helps in digesting food, and assists the vitalizing principles in discharging their functions of life.

Udana is the energy of the speech centre. It courses upward and produces speech, song, etc.

Samana is the energy of the epigastric plexus, works in the stomach and digests the chyme brought down into the intestines in unison with the digestive ferment and especially in disintegrating its essence from its refuse. Every one of the senses performs its work through this vital energy. Heat is circulated through it.

Vyana is the energy of the motor-sensory nerves. It circulates in the whole organism like the etherial element, sends the lymph chyle all through the body and helps the outflow of blood and perspiration.

Apana is the force of the hypo-gastric plexus. It functions in the lower region of intestines, carrying the foetus and faeces and in evacuating the urine, semen and catamenial blood.

7. THE NERVOUS SYSTEM

It has been seen before that Ahankára manifests itself into the two categories of perception and action. The function of sense-perception is done by the Jnánendriyas or the sensory nervous system. It includes the powers of seeing, hearing, smelling, tasting and feeling-by-touch. The other group of manifested powers consists of Karmendriyas or the motor nervous system. It is made up of five powers which may be called the power of speaking, grasping, locomotion, excretion and sexual action. Both these pentads of powers find their visible expression in every human body, but the physical organs are not meant here. These could come into

being after the production of the Bhútas and the corpuses made of these five gross elements. Hence the physical organs have not been declared to have come into manifestation by the modification of Ahankára. The import is that each one of the subtile Indryas or powers has its own physiological instrument for expressing itself.

The Sánkhyas are particular in distinctly stating *that every one of these Indryas is supersensuous and that it is deluded persons alone who take the motion of the Indriya in the sense of its physiological site, for example; the eye-ball. It is not an object of sense-perception. In fact, Indriya is the site, and not that it is in the site.*

8. SPONTANEOUS ACTIVITY IN ORGANISMS

There is one important doctrine to which attention has to be drawn. The cause of the manifold activities of organisms is to be searched for. The Sánkhyas consider all activity to be spontaneous. The organs, though unintelligent, act spontaneously and unconsciously, as the milk of a cow is formed unconsciously in the udder and yet serves to nourish the calf. They act by an impulse derived from their own nature, and do not need the assistance of any external agent. The Sánkhya Kárika (II. 31) has thus expressed the idea. " Every internal organ performs its own separate functions, which it is caused to act by a mutual impulse. The advantage of the soul is their cause of action. An organ is not caused to act by any one".

Mutual incitement and spontaneous disposition are the conditions which induce the internal and external organs to perform their respective functions. The

activity of one organ exerts an insensible influence upon another, so that the organs have unconscious, spontaneous and sympathetic activity. They must act of their own nature. Neither a deity nor a mortal can compel them to act. Thus their activity is an innate property undirected by any external agent.

All organisms are automatons; their parts are interdependent, but in no way directed by any super-natural agency, either of soul or God. They act of their own accord. Such a mechanical interpretation of life is surely fraught with important consequences for science and philosophy.

9. ORGANS

The organs of sense perception and action are well-known to be (a) the eyes, ears, nose, tongue, skin; (b) voice, hands, feet, excretory organ and the organ of generation.

The intellectual or *sensory organs* are so-called, as they ascertain the five objects of form, sound, smell, flavour, and touch in the order detailed above.

Motor organs are so-called becausc they perform acts. The tongue articulates, the hands manipulate, the feet effect motion, and so on; of course, it is in the very nature of the senses to receive simple impressions from without of their own accord; but whether those impressions shall be perceived depends upon the co-operation of the mind.[1]

The phenomenon of hearing is possible only when an ear, the organ of hearing, a sound, the object to be heard, and the mind-the discriminating subjective consciousness-are simultaneously present. In the absence

1. Cf. Shanti Parva, 194.

of any one of them, the act of hearing is not possible. The purpose of their existence is defeated in the absence of any one of them. The same is the case with the perceptions of touch, taste, smell, and form. Hence the simultaneous birth of the sixteen categories has been postulated by the Sánkhyas and taught by the great sage Panchshikhá to Janadeva, one of the illustrious descendants of the famous Janaka.[2]

The simultaneous manifestation of mind and the decade of ten powers has been well argued by Mr. Chatterji thus:—

"In other words, desire as represented by Manas, can never exist by itself. It is desire either to *perceive* or to *act*. And, therefore, the moment there arises such a desire in the Purusha, when it has reached the Ahankára stage, and therewith Manas is produced, that very moment the powers, i. e., the Indriyas, to perceive or to act are also evolved. And as the desire, i. e, Manas, arises and can arise, cnly in these ten forms-five for perception and five for action, the ten Indriyas are also produced, simultaneously with the Manas as desire, in their ten-fold forms."[1]

10. TANMATRA

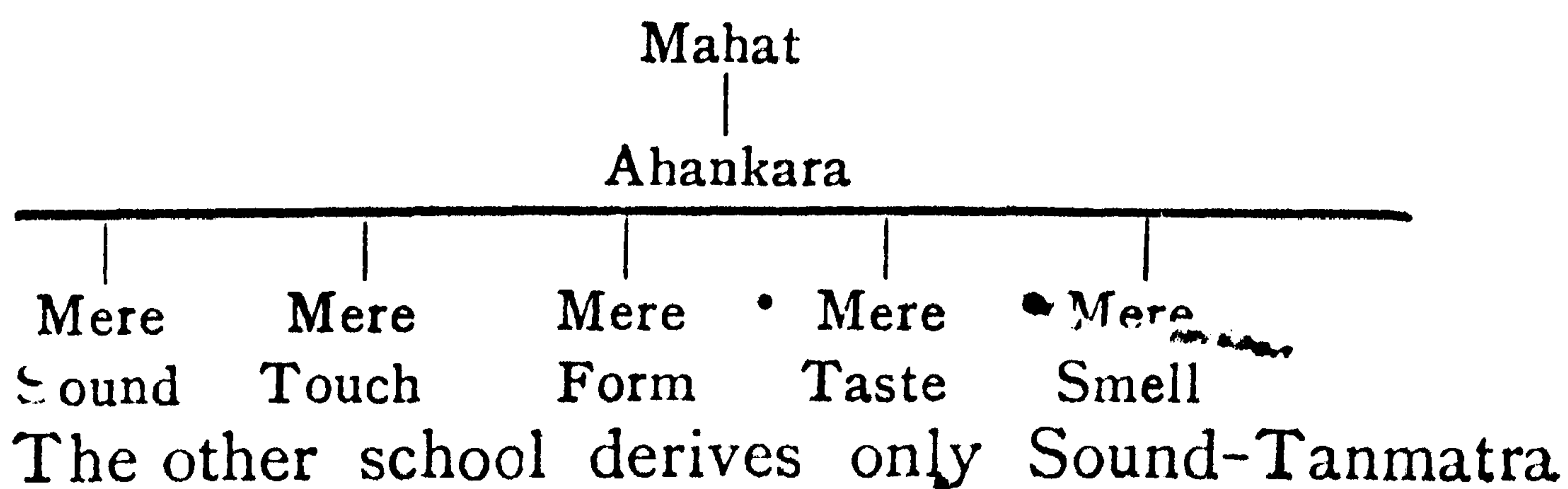
This word literally means 'That only,' or Thatness. Matter in that state is something so vague, general, indeterminate, indistinct and undefinable that you can not give any name to it It is the subtle rudiment, the essence, the root of the so-called elements. It is truly said that the Elementals are unspecific[1] or exist in unspecialised forms. There are five Tanmátras corresponding to five Elements or

I. Shanti Parva, 219. 23–24, 33-36.

Beings. With the manifestation of the five powers of perception, their correlated objects appear into existence from the same Ahankára. Without their simultaneous manifestation with the nervous system, the latter has no utility and no meaning. The one cannot be without the other, both must exist if there is any utility in any one of the two. Without sounds to be heard, the power of hearing is worthless and *vice versa*. But at this stage of development these objects of sense are most subtle, diffused or general. The stage of the particularization of sounds and sights has not been arrived, only some vague elements to be experienced by the senses grow out of the Ahankára.[1]

For a long time hydrogen was postulated by chemistry to be the primitive atom. Recently helium became the candidate, but even this has given place to ether as the primary protyle. It is the Sánkhya speculation which goes beyond ether. This subtlest form of matter-energy and even its Tanmátric infinitesimals like the atoms of the chemists bear the impress of being manufactured articles.

The evolution of the Tanmátra is represented in two ways at least. Each Tanmátra is a direct descendant of Ahankára as shown here:—



The other school derives only Sound-Tanmatra

1. Sankhya Karika, 38. No Tanmatric stage is recognised by the Vaisheshika school.

from Ahankara and then the transformation proceeds as given below:—

Támasa Ahankára is modified into

Mere Sound	Characteristic-Sound only.
Mere Touch	Sound and Touch.
Mere Form	Sound, Touch and Form.
Mere Taste	Sound, Touch, Form and Taste.
Mere Smell	Sound, Touch, Form, Taste and Smell

The Tanmátras occupy an intermediate state between the world of the ponderable Bhútas and that of the imponderable Ahankára. The atoms of the ancients may be said to be made of the stuff called Bhútas. It is Prakriti that is eternal and not the atoms which were till lately considered to be primordial, immortal and unborn. Hence the Tanmátras are called Rudimentals, Elementals, Subtle elements, Rudents, Archetypes of Beings as they enter into the constitution of every substance.

II. ELEMENTARY STATES

Their relation to the next stage is represented below:—

Mere Sound	Mere Touch	Mere Form	Mere Flavour	Mere Smell
|	|	|	|	|
Ether	Air	Light	Water	Earth

These subtile and unspecific rudimentals proceeding from Ahankára-egotism are so imperceptible that they can only be perceived by gods and sages. On the other hand, their modification, the gross and specific elements, ether, air, etc., -are the objects of the senses of men and cause either pleasure, pain or insensibility to them. According to Váchaspati, among the gross elements of ether and the rest, some through the predominance of goodness, are soothing, pleasant,

agreeable, light; some, through the prevalence of foulness, are terrific, painful, restless; whilst others, through the influence of darkness are stupefying, depressing, heavy.[1] According to Sushruta Ether abounds in the attributes of Sattva;

Air	abounds	in	Rajas
Light or Heat	,,	in	Sattva and Rajas
Water	,,	in	Sattva Tamas, and
Earth	,,	in	Tamas.

The predominance of any element in the composition of a thing or being, means the predominance of the specific guna or gunas inherent in that element.[2]

Saint Vyása enumerates ten physical properties of each one of these five elements. The passage in simply remarkable from the scientific point of view.

The properties of earth are immobility, weight, hardness, productiveness, scent, density, capacity to absorb all sorts of scents, cohesion, habitableness and firmness.

The properties of fire are irresistible energy, inflammability, heat, capacity to soften, light, sorrow, disease, speed, fury, and upward motion.

The properties of wind are touch that is neither hot nor cool, power to help the organs, speech, independence, strength, celerity, power to help all kinds of discharge, power to raise other objects, breaths inhaled and exhaled, life, and birth.

The properties of ether are sound, extension, capacity of being enclosed, absence of refuge, want of support, power of being unmanifest, capacity for

1. Sank. Prav. Bh., pp. 120-121, also Cf. Yoga as Philosophy and Religion by Dr. Dasgupta, pp. 64-70.

2. Surhruta II. 121.

modification, incapacity for resistance, material cause for producing the sense of hearing, and elementary modifications.[1]

The enumeration of the attributes of the five elements by Vâchaspati differs a little and is given here from his gloss on the Yoga system:—

The physical characteristics of the *Prithvi* are:—Form, heaviness, roughness, obstruction, stability, manifestation (vritti), difference, support, turbidity, hardness, enjoyability by all.

The characteristics of the *Apas* are:—Smoothness, subtlety, clearness, whiteness, softness, heaviness, coolness, preservation, purification, cementation.

The characteristics of the *Tejas* are:—Going upwards, cooking, burning, lightness, shining, destruction, power.

The qualities of the *Vayu* are:-Transverse motion, purification, throwing, pushing, strength, movability, throwing no shadow, roughness.

The characteristics of the *Akasa*:—Motion in all directions, non-agglomeration, and non-obstruction

It is together with these characterstics that they are called gross.

Form (murti) is hardness brought about (samsiddhika) by stability of the lines of action and manifestation.

Tejas is heat, stomachic, solar, terrestrial; everywhere heat exists along with Tejas.

The whole of this terminology makes no distinction between the characteristic and the characterized.[2]

1. Shanti Parva, Chapter 255; Cf. Chapters. 252. 286.
2. Yoga Sutras, S. B. H. III. P. 246.

12. EVOLUTION OF THE PENTAD

The evolution of this pentad is not explained in the Sánkhya Sutras, but many Puránas have thrown light upon the subject.

I. The Sánkhya theory seems to show that each element has developed from its own rudiment which, in turn, is an independent evolute from Ahankára.

II. The Taitríya Upanishad makes no mention of the Tanmátras and supposes each succeeding element to be the evolute of the preceding evolvant, as Ether--Air-Fire-Water-Earth.

III. The third theory of the Puránas seems to be more ingenious. Their evolutionary succession can be thus represented:—

Ahankára-Mere Sound-*Ether*-Mere Touch-*Wind*-Mere Form-*Light*-Mere Taste-*Water*-Mere Smell-*Earth*.

The Puránas concur in the statement that in this process

(i) each medium or element by itself produces the rudimental of the succeeding medium or element,

(ii) but when it envelops, in association with its own rudimental, its evolute rudimental, it gives rise to the succeeding element.

These two stages can be visualised thus:—

I. From Ether is evolved Touch Rudent

I. From	Ether	is evolved	Touch	Rudent
	Wind	,,	,,	Form	,,
	Fire	,,	,,	Taste	,,
	Water	,,	,,	Smell	,,

II. From both

Sound rudent and Ether enveloping Touch Rudent emerges wind;

Touch ,, ,, Wind ,, Form ,, ,, Fire;

Form ,, ,, Fire ,, Taste ,, ,, Water;

Taste ,, ,, Water ,, Smell ,, ,, Earth.

In other words, the earth-atom is made up of the five Tanmatras with a prevalence of the odiferous elemental. The liquid atoms have no odiferous rudiment, but are composed of the remaining four tanmátras with the preponderance of gustiferous rudent. The fiery atom is compounded of three subtiles with the prevalence of the luminiferous minima. The gaseous atom is born from the tangiferous and soniferous mimima with the predominance of the former, while the ether is the result of the soniferous rudent alone. The atoms of each one of the five elements are characterised by an individuality of their own and are presented to consciousness as single wholes. Each such atom is an independent individuality and is ultimately resolvable into its specific tanmátra. The further stage of disintegration is Ahankára. Subtler than this is the Mahat-the phenomenal objective existence. Subtler than this is the Noumenal itself. There is nothing Subtler than this Noumenal. [1]

IV. Váchaspati offers quite a different explanation of the origin of the five elements. It can be presented thus:—

Predominate Attribute

From Sound Tanmátra evolves Ether-Mere Sound.

From Mere Sound and Mere Touch evolves Air - Mere Touch.

From Mere Sound and Mere Touch and Mere Form emerges Fire—Mere Form.

1. Yoga Sutras, pp. 76-79.

From the four rudents of Sound, Touch, Form and Mere Taste evolves Water—Mere Taste.

From the five rudents of Sound, Touch, Form, Taste and Smell evolves Earth—Mere Smell.

V. *Nagesha* [1] explains the emergence of the elements in a different way. The envelopment of Bhutadi or Tamasa Ahankára on Mere Sound produces Ether; on Mere Sound and Mere Touch gives Air; on Mere Sound, Mere Touch and Mere Form evolves Light; on Mere Sound, Mere Touch, Mere Form and Mere Taste forms Water; on Mere Sound, Mere Touch, Mere From, Mere Taste and Mere Smell produces Earth.

The attribütes of the elements, as well as of space and time according to the Vaisheshikas (2. 1. 31) are given in a chart below. It will be seen that earth and water have fourteen attributes, fire, 11, air, 9, and ether, 6. Space and time have both the same traits of number, measure, separateness, conjunction and disjunction. In their absolute form they are similar, but speaking relatively they are different.

1. Cf. Yoga Varttika on I. 45.

	Earth *	Water	Fire	Air	Ether	Space	Time
1. Colour	P	P	P	X	X	X	X
2. Taste	P	P	X	X	X	X	X
3. Smell	P	X	X	X	X	X	X
4. Touch	P	P	P	P	X	X	X
5. Number	P	P	P	P	P	P	P
6. Measure	P	P	P	P	P	P	P
7. Separateness	P	P	P	P	P	P	P
8. Conjunction	P	P	P	P	P	P	P
9. Disjunction	P	P	P	P	P	P	P
10. Priority	P	P	P	P	X	X	X
11. Posteriotity	P	P	X	P	X	X	X
12. Gravity	P	P	X	X	X	X	X
13 Fluidity	P	P	P	X	X	X	X
14. Impression	P	P	P	P	X	X	X
15. Viscidity	X	P	X	X	X	X	X
16. Sound	X	X	X	X	P	X	X
P=Possesses X=No	14	14	11	9	6	5	5

Thus there is not much difference in the physical properties of the Elementals in the three systems of Yoga, Sânkhya and Vaisheshika. All the three also agree on the nature of the relation existing between the senses and the elementals-the perceiving and comprehending organs and the perceived matter· The real nature (Svarupa) of the elementals is shown by the qualities of smell, taste, form, touch and sound inherent in each of the five.

It is on account of this dual process of envelopment and enfoldment that earth has latent in it properties of its preceding quarternion, water of its preceding triad,

fire of its preceding diad and air has the property of its productive monad, the ether. Every element having evolved from its own rudent fully possesses the property of the rudent. Therefore the peculiar attributes of the five elements are sound, touch, form, taste and smell.

13. SIGNIFICANCE OF ELEMENTS

All material substances are divided from the point of view of resistance with which they appeal to our senses into five different stages or elements. 'The resistance experienced when we encounter one or other of these forms of material existence varies from something very impressive—the solid, —through something nearly impalpable—the gaseous, —up to something entirely imaginative, fanciful, or inferential, viz., the ether.'

The use of the word 'sanghâta' for 'Earth' distinctly proves that the latter stands for solidity which is the chief characteristic of earth. In the Padma Purána (I. 2. 18) it is said that from water is evolved solidity. Scent is considered to be its special property.

Similarly, water stands for liquidity, air for gaseousness, fire for igneousness and ether for extension. The five conditions of ethereality, igneousness, gaseousness, liquidity and solidity come into being.

Vyása has explicitly explained it thus. General heat, the digestive heat in the stomach, the heat of the body, light that manifests all things, are 'light' whose special characteristic is form.

All kinds of liquid matter and solubility are represented by 'Water.' Blood, marrow and everything that is cool, have *water* for their essence.

All solid substances, such as bones, teeth, nails,

beard, hairs, nerves, sinews, skin, etc. partake of *earth*.[1]

In short, the Sánkhyas and Vaisheshikas discovered the hypothesis that solids, liquids, gases, igneous and ethereal objects have each their specific elementals, and inhered and acquired properties.

Shankara Misra in his commentary on the Kanáda Sutras (4. 2.11) supplies illustrations of the four elemental states. 'Terrene objects are found as earth, stones and immovables. The modifications of earth are plots of land, walls, bricks, etc. Stones imply mountains, jewels, diamonds, red-chalk, etc. The immovables are grass, herbs, trees, shrubs, creepers, and trees bearing fruits without flowers. Aqueous objects are rivers, seas, dew, hail-stone, etc. Igneous object is four-fold, differentiated as terrestrial, celestial, abdominal, and mineral. The terrestrial heat is that which is produced from fuel; celestial heat is lightning, etc. The abdominal heat is the stomachic, capable of extracting the juice of rice, etc. And the mineral heat is gold, etc. The aerial object is the wind which is the seat or support of touch. The fourth effect of Air, which is called Prána, i. e., the life-breath, and which is the means of disposing of the essences (rasa), excreta, and the humours or vital fluids (dhatu) within the body, though it is one, still acquires the names of Apána (i. e., the air which throws out) etc., according to the diversity of its functions.'

Beyond the classical three conditions of solid, fluid, and gaseous, the Hindus recognized two more states of matter-the igneous and ethereal which are ultra-gaseous states of substance. Each preceding

1. Shanti Parva, 252. 2-8. Cf. Budhism in Translations, p. 157.

state was looked upon as a primary condition of the succeeding state.

"There appears to be no question that the gaseous condition of matter, perhaps material is a better term, *is evolutionary to one of fluidity*, and that again to a state of solidity."[1]

These properties are shown below:—

Inhered	Acquired
Ether—Sound	None
Air —Touch	Sound
Fire —Form	Sound and Touch
Water-Taste	Sound, Touch and Form
Earth -Smell	Sound, Touch, Form and Taste.

So by the Sánkhyan 'ether' is not meant the ether of the scientists, but all substances having the subtlity and spaciality of ether. Similarly, the Sánkhyan 'Earth' does not mean any solid earth, but all substances having the solidity, hardness, density, scent, etc., of the well-known earth.

This very interpretation is given in the Buddhistic philosophy as summarized by Mádhava in his Sarva--Darshana-Sangraha.

A germ, caused by a seed, is generated by the concurrence of six elements. Of these, earth as an element produces hardness and smell in the germ; water as an element produces viscidity and moisture; light as an element produces colour and warmth; air as an element produces touch and motion; ether as an element produces expansion and sound; the season as an element produces a fitting soil.[2]

1. Human Evolution, p. 16.
2. Cowell, p. 31.

The properties of the elementals differ in the Vaisheshika philosophy.

Earth possesses colour, taste, smell and touch.

Water possesses colour, taste and touch, and is fluid and viscid.

Fire possesses colour and touch.

Air possesses touch.

Ether does not possess these characteristics. Sound alone is the distinctive mark of ether.[1]

This ether which serves as the medium through which sounds travel is different from the primary or causal ether. The latter is the formless Tamas, for in that stage it has not the quality of manifesting itself in sound. The causal ether transforms itself into the physical ether which is the vehicle of sounds. The ear is the ethereal sense-organ, the one by which the ether is enabled to appeal to us. The detection of the sound wave-vibrations through this ethereal medium was, of course, supposed by the Hindu Shastras to be done by the ear.

The word ' property ' used above is rather misleading. The fundamental idea is that the earth or a solid, can pass into the liquid, igneous, gaseous and ethereal states; similarly, every liquid like water from its liquid condition can pass into the igneous, gaseous or ethereal states. So an igneous substance like fire from its igneous condition can be reduced to the gaseous and ethereal forms. Also the gases can be so attenuated as to adopt the rarefaction of ether. It is upon this hypothesis that the dissolutionary process becomes very simple in the Hindu philosophy. All phenomena are compre-

1. Kanada Sutras. 2. 1. 1-8.

hended in the five elemental forms. In the process of involution each elemental, losing its inhered property, merges into its preceding element and thus in course of time the visible world is reduced to the state of Tanmántras.

These finally pass on to the state of Prakriti thus:—

Solids	by the loss of	scent	become	liquids.
Liquids	,,	taste	,,	Fire.
Fire	,,	form	becomes	gases.
Gases	,,	touch	become	Ether.
Ether	,,	sound	becomes	Ahankára.

The Mind and senses by the loss of Sattva and Rajas become Ahankára.

Ahankára	by losing Tamas	becomes	Mahat.
Mahat	,, Sattva	,,	Prakriti.

Ether forms the basis of the material world. This ether in course of time agglomerates and gives rise to that nerve force which imparts the sensation of touch. Similarly, the other nervous forces are evolved later on. This rectilinear process of condensation results in the fundamental forms of matter. Then comes the agglomeration of matter in the form of an egg-shaped spheroid full of motion. The integrative evolution culminating in the manifestation of this wonderful universe, passes through various stages. Leaving all cosmologic legends and fables in the lumber-room of Pauranik mythology, if we select only rational interpretations, we find some crude anticipations of modern doctrines.

14. KANADA-EINSTEIN CONCEPT OF SPACE-TIME.

It appears to me that the Vaisheshikas were the first to differentiate between relative time and space and absolute time and space. They recognized the former two

as independent entities but identified the two latter. Even ether was considered to be an aspect of this concept of Space-Time. In this field they roughly anticipated the highly abstruse theory of Einstein and boldly eliminated the difference between Time and Space. The commentary of Shankar Misra on II. 2. 12. of the Kanáda Sútras, has the following remarkable statement :-

According to Kanáda, it appears, there is but one substance, variously called as Ether, Time, and Space. For, he has taken much pain to establish the difference of Ether from tangible things, Self, and mind, but he has made no attempt to prove the difference of Ether from Time and Space as well. Nor has he attempted to prove the difference of Time and Space themselves from any other substance. It may be, therefore, considered that with the difference of Ether, the difference of Time and Space also has been established. But it may be asked, if there be one substance only, how does it come to be variously called as Ether, Time add Space? He replies that this is due to the variety of effects produced by it (II. ii. 13) and also to the variety of external conditions attending it (II. ii. 14, 15 and 16).[1]

At another place it is laid down that ether, time, and space do not form any class, since they have only a single individual existence.

The separate mention of time and space is intended to indicate the difference in the uses of these terms according to the difference of the effects. Ákasha, though it is one, still admits of a variety of names and uses, according to the difference of effect. Hence time and space are not essentially different objects from Ákasha or ether.[2]

1. S. B. H. Vol. VI. P. 80. 2. Ibid. p. 18.

15. COSMIC EGG

We are told in the Mârkandeya Purâna that by reason of their being governed by the soul and also through the favour of Prakriti, Mahat and the other principles of various energies, caused an egg to come into existence.

There like a bubble on water, the egg *gradually* increased by means of the various principles. In its enlarged state *it lay on the water.*[1] That egg enclosed all these three worlds with all that they contain. In that egg were developed continents, mountains, islands, seas, a horde of luminous worlds, gods, demons, human beings.

Then the egg was enveloped in succession by the four elemental conditions of water, air, fire, ether, and by the evolvant Ahankâra externally, ten times over by each of them. It was then surrounded by Mahat of the same magnitude-this Mahat was covered by the Imperceptible Prakriti. With these seven spheres formed from Prakriti was the egg enveloped.

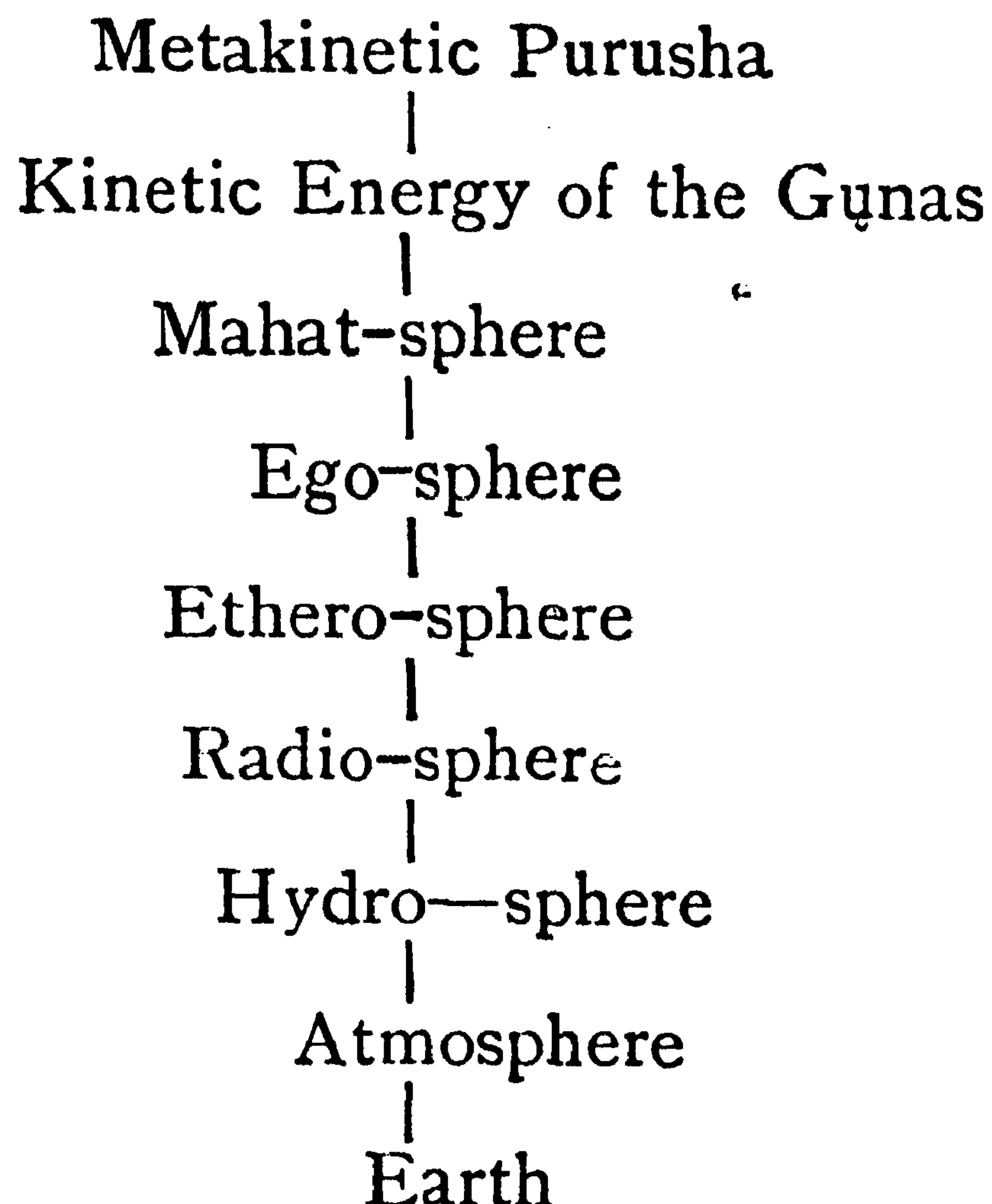
All these transformations occurred through ages. No human speculation can give us the countless aeons which passed for these modifications. Therefore the Hindu philosophers use the vague phraseology of "through course of time," while the Bhágavata gives the idea of a period of "a thousand multitude of years." Still millions of years were required for the emergence of the world as it is now visible to us. "The elements, when uncombined, are distinct and have various energies; they could not have created the worlds unless they

1. Chh. Up. III. 19. Padma Purana,. II. 106 and Linga Purana, III. 28 do not mention the resting of the cosmic egg on water, but Manu (I. 8-20) confirms Mark. Purana.

had united. Coming together and supporting each other, they attained firmness and harmony and came to possess the marks of a single complex body."[1]

There seems to be a ray of truth in this theory. The earth is said to be enwrapped first by the hydrosphere, and secondly, by the atmosphere. Then come those chasms of space wherein there is neither vapour nor air, but fire alone exists. Beyond this radio-sphere extend the confines of space occupied by ether. Even beyond this Ethero-sphere is the region of Ego-sphere, followed by the territory of cosmic consciousness.

Thus behind the physical is the psychical and behind the kinetic is the metakinetic. The whole universe can now be represented in concentric circles thus:—



The whole chain is constructed on the principles that 'nature abhors vacuum,' that beyond the regions

1. Vishnu Purana, II. Mark. Purana, 45. 60-61. Padma. P. II. 103-104; Bhavgata, P. II. IV. 22, 32-35; III, XXVI. 50-53. Cf. Shanti Parva, 312. 2-4.

pervaded by the substlest ethereal substance the infinite confines of space must be pervaded by ultra-material or the psychical entities, and that even beyond these there must be the spaces filled with eternal energy.

16. GROSS BODY

Every gross substance animate or inanimate, according to the Sánkhyas, is composed of five components in more or less proportion. One body only differs from another by containing a varying ratio of the Bhútas. Weight, form, properties depend upon the proportion of these five constituents. The apparent permanence is the result of the ephemeral equilibrium resulting from the composition of these Bhútas. The word 'element' is a misnomer for Bhútas, as these are the products of still subtler matter which, in turn, is a modification, through various stages, of the ultimate Prakriti. Matter is a variant of the five elemental principles like Ether, etc, which themselves are simply variants of Prakriti.

Here is the teaching of Vyasa. 'These five entities occur in all existing things. Though really one, they are yet regarded different like the waves of the ocean. Like a tortoise stretching out its limbs and withdrawing them again, the great entities by dwelling in innumerable small forms, undergo transformations. The creator of all things, however, hath made an unequal distribution of the elements for serving different ends.'

The Vaisheshikas refute the theory of the penta-substantiality of the bodies and affirm that these are not compounds of five, four, three or two kinds of elemental atoms but of one kind of atoms alone. "The human body is terrene, the distinctive attribute of earth being

perceived in it. The arguments advanced by the school in support of their doctrine do not, however, appear to be as convincing as those of the Sánkhyas.[1]

Bhishma has put the same idea in another garb. On account of its infinity, primordial matter is never exhausted. Just as from one lighted lamp thousands of other lamps are capable of being lighted, so primordial matter produces thousands of existing things.[2]

It is important to note here that the five Bhútas are in the Sánkhyan school transformations of their respective *tanmantras* which are themselves modifications of Egoism; the five subtle entities are changed to five less subtle elements. According to Manu,[1] Brahma created mind which modified itself into ether, this was changed into wind, that into fire, that into water and that into earth. Each succeeding entity is a modification of the preceding one. Each preserves its indepedent existence and serves as a cause of something else. Mind-Ether-Air-Fire-Water-Earth are the six stages of elementary evolution.

Saint Bhrigu in the Shánti Parva is presented to teach a different doctrine. The successive steps can be briefly shown thus:—Mind-Mahat-Ahankára-Ether-Water-Fire-Wind-Earth.[3]

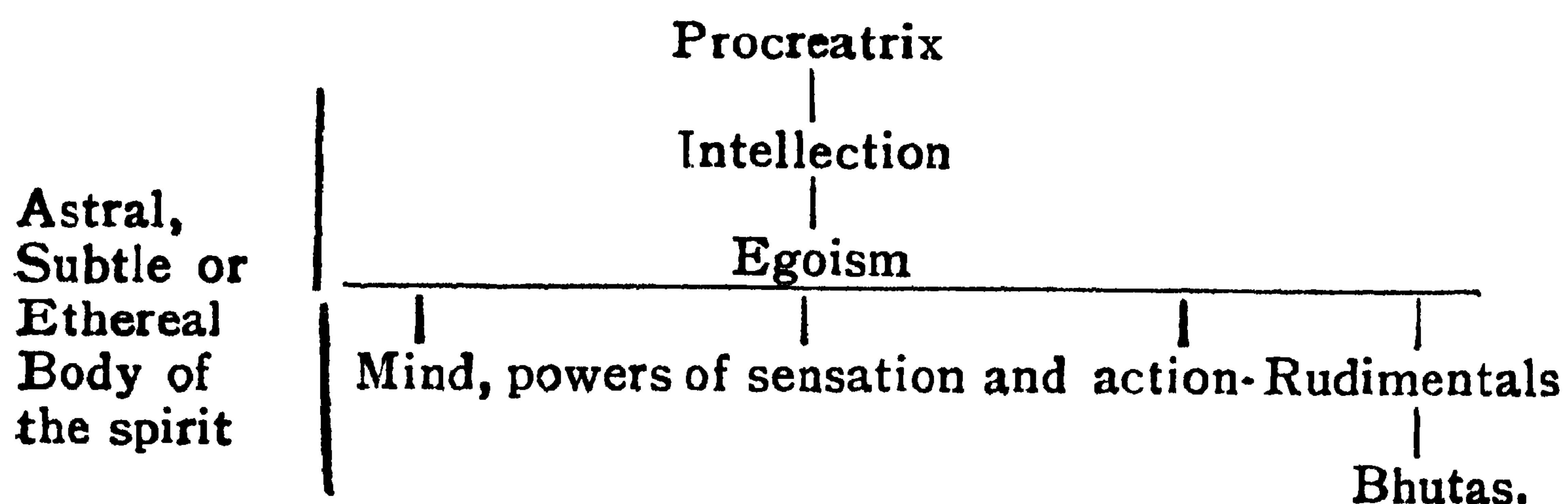
Bhishma subscribes to the same view, except that his starting point is Prakriti. Moreover, the five sensory and five motor organs, their five objects of cognition and mind which is the outcome of their modification, are said to result from the original eight entities.[4] Thus there are vital differences between these two theories and the Sánkhyan doctrine.

1. Kanada Sutras IV. 2. 2-4; VIII. 2. 4.
2. Shanti Parva, 247. 2-6. 210. 25-26.
3. Manu 1. 75-78. 4. Shanti P. 182. 11-15; 210. 27-30

How far this great truth enunciated by Manu and Bhrigu has been demonstrated by modern science will be evident from the words of Bon. 'The ether and matter are one thing under different forms, and we cannot put them asunder.'

The problem of the nature of matter has defied solution by modern scientists and philosophers. Scientists and physicists used to postulate the pluralism of eternal atoms, but the researches of Bon and others have proved the dematerialization of matter. It has now been recognized that force and matter are two different forms of one and the same thing. Matter (in the shape of atoms) represents a stable form of intra-atomic energy; heat, light, electricity, etc. represent unstable forms of it. [1]

Let us pause for a moment here and review the successive stages of the development of the Primordial Energy. We have seen the process of the cosmic evolution to be thus:—



It is here postulated that the mental processes and powers are the phases of the pre-evolute matter; that is, they are material off-shoots and are in no way the attributes of spirit or self. In some systems intellect, consiousness, mind, etc., are proved to be the qualities of the soul alone. In them no relation is postulated

1. Le Bon-Evolution of Matter, p. 9.

between this mental apparatus and the body, but in the Sánkhya system the whole mental organism is recognized as the product or modification of matter under the impulse of Purusha.

Matter, intellect, consciousness, mind are finally merged into the eternal forms of the Gunas. Nay, even the whole heirarchy of heavenly beings is an emanation of Prakriti, and is absorbed like other living and non-living things into this primal source. No superior, independent, supernatural, superhuman intellect, providence, force or ruler had any place in the shaping of the world. The self-existent, unconscious Monism endued with a potentiality inherent in it, unconsciously evolved the manifold things and beings for the release of the individual souls.

Several European philosophers have similar views. For instance, Hegel postulated Nature to be petrified spirit, while Schelling, Spinoza, Leibnitz and Kant thought Nature to be spirit visible. Haeckel comes, very near the Sankhyan doctrine when he says that matter has sensation and will as latent potentialities in embryo from the very beginning. Lilly has well said that 'the old wall of partition between spirit and matter is breaking in all directions. I think I already hear the sound of the trumpets before whose blasts it is doomed to fall.' The Sankhya and the Vedanta, each in its own way, removed the partition between spirit and matter.

17. KAPILA & HAECKEL

It is extremely strange that a physicist and an atheist like Haeckel should, instead of proving the origin of life, consciousness and will from the dead matter, adopt the Sánkhyan view that the atoms are from the

very beginning endowed with these unexplained attributes. The inherent or internal likes and dislikes of Haeklian Matter are the exact equivalents of Sânkhyan Priti and Apriti possessed by all modifications of matter. The minute parts of the universal substance are credited with sensation and inclination, *with soulism* in a certain sense,—in harmony with the old theory of Empedocles of the " loves and hatreds of elements."

The universality of an ethereal substance in which these souls move about, is postulated thus:— " Moreover, these 'atoms with souls' do not float in empty space, but in the continuous, extremely attenuated, intermediate substance, which represents the uncondensed portion of the primitive matter."

The origin of will is explained by saying that " attraction and repulsion seem to be the sources of will-that momentous element of the soul which determines the character of the individual." The same theory is elsewhere stated in these pregnant words. " The two fundamental forms of substance, ponderable matter and ether, are not dead and only moved by extrinsic force, but they are endowed with sensation and will (though, naturally, of the lowest grade); they experience an inclination for condensation, a dislike of strain; they strive after the one and struggle against the other."

The union of the soul with matter is again formulated by that prince of physiologists in these words.

" On those phenomena we base our conviction that even the atom is not without a rudimentary form of sensation and will, or, as it is better expressed, of feel-

ing (aesthesis) and inclination (tropesis)— that is, a universal 'soul' of the simplest character."

It is evident that Haeckel has assigned to the atoms the mysterious attributes of life, mind, will and consciousness. Thus he is unable to explain their first rise and real origin. Then the properties foisted into the atoms have been strangely denied to the organisms which are nothing more than the products of these atoms. This defect is removed in the Sânkhyan theory by the postulation of eternal souls, or permanent personalities for quickening, stimulating or enlivening impermanent modes of life. It is these souls which are responsible for all the vital, mental and spiritual phenomena. The various modifications of Prakriti with their likes and dislikes (Sattva and Rajas) serve as so many mediums for the manifestation of a soul's activity. Thus in both the systems the psychic attributes of mind, thought, will, consciousness arise out of a universal substance; but the Sânkhya school maintains that these modes manifest themselves only through the impulse of a soul and for the benefit of a soul as these are vehicles for its expression and realization.

18. THE ASTRAL BODY OR PERSONALITY

It should be remembered that Mahat, Ahankara, mind, sensations, the elementary phases of matter are in a way eternal like the matter itself. They form an eternal cover of the spirit and remain attached to an individual soul in all the bodies which it adopts according to its deeds. Even when a soul is redeemed or liberated, from the cycle of births, this apparatus remains with it for its enjoyment. Without this subtle corpus, the spirit by itself alone, being absolutely passive in the

system of Kapila, could not realize the joys and charms of heaven. The Linga or spiritual body is the active soul and expresses the specific individuality of a living being in its existence on this earth and hereafter.

It is this apparatus which inheres in the soul through its numerous journeys in various physical bodies. The astral body is responsible for maintaining and continuing the specific individuality of a soul. This is the medium of accumulating and expressing the experiences of the various births. Without this receiver each soul will have to begin with a *tabula rasa.* But it is a matter of common knowledge that each human soul comes endowed with more or less accumulated knowledge. This must have been obtained in some previous births and kept latent in the astral body.

On obtaining liberation, a soul is first freed from the ever-recurring cycle of births and deaths for a period of time. Such a soul with its envelopment of the astral body freely moves about in space. Vyâsa has enlightened us on the topic.[2] As the rays of the sun, moving in dense masses through every part of the sky, cannot be seen by the naked eye, though their existence can be perceived by reason, likewise, existent beings freed from gross bodies and moving in the universe, are above the reach of human vision. As the shining solar disc is seen reflected in the water, so the

1. Sankhya Karika, II. 53. 'The Prakriti of Kapila answers to the Wille of Schopenhauer. It is a blind unconscious force, or rather a primal substance, with a potentiality of force through the constituent called passion or foulness out of which conscious life was an unhappy development.' Hindu Philosophy by Davies, p. 105 n.

2. Shanti Parva, 253. 2-4.

Yogin sees reflected within gross bodies the existent self. All those souls that are encased in astral forms, after being alienated from the gross bodies in which they lived, are perceptible to Yogins, who have controlled their senses and who are gifted with knowledge of the soul. Indeed, helped by their own souls, Yogins see those invisible beings.

The permanance of this astral apparatus ensures the permanence of the character of an individual through various births. We read in the Sushruta Sanhita that an honest, pious, erudite man who has acquired a vast knowledge of the Shastras in his prior existence, becomes largely possessed of mental traits of the Sattvika nature in this life too and also remembers his prior births. Acts similar to those which a man performs in prior existences, overtake him also in the next. Similarly, the traits and the temperament which he had developed in a previous existence are likewise sure to be patent in the next.[1]

The view of Sir Oliver Lodge may now be fitly compared. " Is there any third thing of which it is possible to assert conservation, and therefore permanence ? It is a moot point. But the confidence is steadily growing that Personality is of that order, and accordingly that personality of character does not go out of existence, but is permanent. '[2]

1. Sushruta II. P. 133.
2. Sir Oliver Lodge, Evolution aud Creation, p. 58.

CHAPTER VII

ORGANIC EVOLUTION

We perhaps form protoplasmic material, but not living protoplasm. The element of life only enters it as the result of antecedent life; the germ of life must be handed on. And if we ask how the first germ arose, we cannot answer. Not yet.

The origin of life itself was left as an insoluble mystery or rather as a mystery to be solved by science at some future date.

We do not really know how the different species originated; that is still a subject matter for controversy.[1] —*Sir Oliver Lodge.*

1. ASEXUAL GENERATION

The early attempts of arriving at a solution of the origin of animals are typical of the philosophic perspective of the times. The early Greek idea of the birth of animals from mud, from rain water[2] and warm vapours, the Aristotlean belief in the spontaneous generation of insects from putrified matter, the theory of Cardau that the cause of the origin of life was fermentation and that of Thomas Browne that putrefaction originates life, are eloquent testimonies of the low condition of scientific development before the Renaissance in Europe.

Anaximander, Aristotle, Augustine, Thomas Aquinas, Van Helmont and many others may be named to share the same views on this point.[3]

In India too, the prevalence and preponderance of similar theories are no less surprising. In the Hindu classification of animals, there is one class of animate

1. Evolution and Creation, pp. 24, 117–118.
2. Cf. Lucretius, Anaximander, Aristotle in Th. and Geddes' Life, vol. II, p. 913.
3. Pioneers of Evolution, pp. 7, 18–19.

beings which are said to be born of moisture and heat. Similarly, compare the theory of the birth of scorpions from cow-dung by putrefaction according to the Hindu tradition.

Sushruta teaches that the venomous leeches have their origin in the *decomposed* urine and fecal matter of toads, and venomous fishes spring up in pools of stagnant and turbid water. The origin of non-venomous species is ascribed to such *decomposed vegetable* matter, as the *petrified* stems of several acquatic plants and the common zoo-phytes which live in clear waters.[1]

Then a philosopher like Pâtanjali (at least 150 B. C.) held that not only animal organisms but also vegetable organisms, e. g., grasses grow from inorganic matter. The Durva grass, for example, can grow from the deposits of the hair of goats and cows, just as scorpions are seen to develop out of the cow-dung.

Sushruta classifies scorpions according to their origin in three kinds. These which germinate from dung or from other substances are mild-poisoned ones. Those which are born from decomposed wood or *decayed bricks* are of ordinary virulence, while those which originate from decomposed body of a snake or from any other poisonous putrid organic matter are strong-poisoned ones. Thirty species in all are produced from such decomposed things.[2] The birth of spiders from putrid matter is still more interesting. A story is told of Vishwâmitra enraging Vasishtha whose drops of perspiration falling upon some stocks of hay produced innumerable dreadful and venomous spiders.[3]

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1. Sushruta Sanhitâ, English Translation, I. pp. 101-102.
2. Ibid. Vol. II. Pp. 749-50. Cf. commentary on Tattva Samasa in Vol. IX of the S. B. H. 3. Ibid. vol. II, p. 755.

Besides the terrene a-sexual bodies of worms, mosquites, scorpions, etc., born of warmth, there are, according to the Hindu Shástras, in other worlds innumerable bodies which are entirely a-sexual. They are classified as aqueous, igneous, aerial and mental. These super-human bodies have different constitutions, organs of generation are not essential for their creation. Their origin has been thus argued by Shankar Misra. "In the case of sexual bodies, it is observed that only the ultimate atoms of semen and blood are their originators. To remove this apprehension, the present aphorism has been formulated. Terrene, aqueous, igneous, and aerial ultimate atoms exist in all directions and in all places. Since there is nothing to confine them to direction and place, there can be no scarcity of ultimate atoms in the production of a-sexual bodies. For it is not the case that ultimate atoms other than the ultimate atoms of semen and blood, are originative of bodies, *seeing that in that case there would be no production of gnats, mosquitoes, trees, shrubs, etc.*

And the action of the ultimate atoms arises from a particular dharma or virtue. The sense is that, at the beginning of creation, action or motion arises in the ultimate atoms in consequence only of the conjunction of the soul carrying with it the invisible (adrishtam) consequence of its previous acts, and the ultimate atoms, having by that action come together, originate, in the order of binary atomic aggregate, etc., the a-sexual bodies of gods and sages. It should be also observed that, in consequence of particular adharma or vices, the tortured bodies of mosquitoes and other small insects, generated by heat, are produced."[1]

1. Kanada Sutras, pp. 146--147.

Thus the omnipresence of life and matter has been postulated in the infinite universe, and these two are united in different forms in the different worlds.

Such are some of the early beliefs of the origin of some species of living beings.

In the modern age, the researches of a host of biologists have thrown a flood of light on the problem of biogenesis. The names of Hindu philosophers and scientists, are, however, hidden in the limbo of oblivion, yet they too dived deep into the mysterious origin of life. We are unaware of the steps taken and methods adopted by them to solve the problem. Conclusions alone are given us. It appears that the present age, with its immense store of inductive knowledge and scientific discovery, has not advanced beyond the Hindu conclusion that so far as human observation and experimentation go, no form of life arises to-day except from pre-existing life. The formula of 'life from life' is the final decision of science. It may now be definitely stated that all known living organisms arise only from pre-existing living orgánisms– *omne vivum a vivo.*

Not content with this small achievement in unfolding the mysterious origin of life, scientific men have been impatient to extend their philosophic and inductive studies in search of the genesis of life on this planet in the first instance.

2. THE FIRST ORIGIN OF LIFE ON THIS PLANET

The regions of life and death are still enveloped with Cimmerian darkness. The sun of modern science has not dispelled or even illumined the thick shrouds. None has yet revealed the real nature of life. We do

1. Ency. B. on Biogneesis.

not advance a step further by such definitions as that 'life is the sum total of the functions that resist death,' that it is 'the continuous adjustment of internal relations to external relations,' or that "life is merely a temporary suspension of these destructive powers."

Vyása and Váchaspati understand by life the manifestation of the functions of all the powers of sensation. It is a particular effort which is the common property of all the motor and sensory organs and the cause of the different actions of the Váyu Tattva-the motive power of an organism.[1]

The question has been raised by modern scientists whether life was transported to this planet from some other part of the universe, or whether life arose spontaneously from non-living matter in an unknown period in the past as a natural result of the evolution of the earth and its elements.

3. BIOGENESIS AND ABIOGENESIS

In answer to this question various theories of the origin of life have been propounded, but they may be said to divide themselves into two categories. The one group attempts to explain the origin of the life-processes in terms of physics and chemistry-of evolution of the living, animate or organic from the dead, in-animate and inorganic matter. The other set denies that life can be explained on a physico-chemical basis and 'assumes an all-controlling, unknown and unknowable, mystical, hypo-mechanical force responsible for all living processes under the name of 'Vitalism', or assumes the transportation of life from some other planet in the universe.

1. Patanjali's Yoga, III. 38.

Eminent men like Kelvin, Helmholtz, Richter and Arrhenius have propounded this theory of the migration of minute living organisms in a meteorite or in the showers of cosmic dust.

There are a few passages in the upanishads which mention the transportation of souls to this earth, as in the Mahánáráyana Upanishad (I. 4) it is said:–" God poured down the souls through the medium of the rain on this earth. " From the point of view of this Cosmozoic Theory, life is as old as the universe itself. In other words, living matter has never originated but has been transported from world to world in the course of cosmic evolution. ' Protoplasm is a handful of dust that God enchants.'

" Hence the acceptance of this permanent dualism of living and lifeless matter, " writes Hall, " does not answer the broad question as to the origin of life, but transfers its origin to a conveniently inaccessible corner of the universe where its solution is impossible. "

Another distinguished scientist, Samuel Daring says that as regards the first origin of life science fails us, and that there is at present no known law that will account for it.[1]

The chief of modern biologists has thus worded the failure of science to penetrate the thick vistas enveloping the origin of life. ' The study of the cell has on the whole seemed to widen rather than to narrow the enormous gap that separates even the lowest forms of life from the inorganic world."

Then Prof. R. S. Lull of the Yale University sums up his opinion in these words. ' All we can say of it is

1. Modern Science and Modern Thought.

that in the fullness of time, when the earth had, in the course of its physical evolution, become adapted as the abode of life, living substance came into being."

Sir O. Lodge and Dr. Klaatsch desire to entirely omit the problem of the first appearance of life on our planet, because at present this question cannot be answered and also because it does not come within the range of the exact sciences.[1]

In the light of these opinions should we not conclude that the propounders of Cosmozoic Theories are at one with the Hindu philosophers who propounded the co-eternity and co-existence of life and matter?

4. HINDU THEORY OF ABIOGENESIS

The Hindu materialists and sensationalists believe that there is no self which persists beyond the body; they assume that conciousness though indiscoverable in the external elements, earth, water, etc., taken individually and collectively is contained in them when they take the form of the body; therefore they maintain that consciousness proceeeds from them in the form of intellect, as does the power of intoxication from the fermentation of unintoxicating things, and that man is only a body which is distinguished by this consciousness. In short, life is looked upon as a rusult of some chemical combination of the insentient and inorganic matter in organic forms. Then, the movements and expressions of new-born babes are explained as due to some external stimulus. Similarly, the spontaneous generation of living organisms is pointed out as a sufficient evidence of the physical basis of life. This physico-chemical

1. The Evolution and Progress of Mankind, p. 43.

theory of life was developed by the Chárvákas and Bauddhas and preferred by Sushruta and Saint Aitreya. All these assert that at a certan stage atoms, through blind chance alone, assume new forms and manifest creative energy. This life-phenomenon begins and ends with the organic body. The Chárvákas were the earliest mechanists or materialists and beautifully anticipated the Greek Epicureans, the modern materialists, and philosophers like Descartes and Kant. The distinguished philosopher Eucken has, however, rightly expressed that "from the very beginning the predominant philosophical tendency has been against the idea that all the forms we see around us have come into existence solely through an accumulation of accidental individual variations, by the mere blind concurrence of these variations and their actual survival, without the operation of any inner law. Natural science, too, has more and more demonstrated its inadequacy."[1]

The Sánkhyas, on the analogy of the loadstone which possesses the power of causing vibration of particles in other bodies by means of its mere proximity to them, assert that sentient effects everywhere follow from insentient causes.[2] But still they postulate the existence of multitudinous and eternal souls. Various objections have been successfully urged against the evolutionist theory of spontaneous generation and a happy mean has been struck by the Hindu savants.

5. PSYCHO-PHYSICAL ORIGIN

The Sánkhyas hold that life is not merely external air (biochemical force) nor any modification or mechanical motion of air which performs the functions of

1. Osborn-From the Greeks to Darwin.
2. S. B. R. Vol. XI. Tattva Samasa, p. 4.

respiration in animal bodies. Life is another name for the fivefold breaths which are a resultant of the various concurrent activities of the three internal instruments, i. e., of the sensoric-motor, the emotional and the apperceptive reactions of the organisms. In the words of Dr. Seal, Prána is only complex-reflex activity resulting from the operations of the psycho-physical principles or forces in the organism. Along with this an individuated eternal soul is postulated as the essential background of all sentiency. Without the contact and presence of this eternal element, Prakriti can not transmute itself into these life forces.

The Vedántists also agree with the Sánkhyas in holding that life is neither air, nor any function of air, nor still it is an independent entity dwelling in the body along with the soul ; it is an instrument of the soul like these organs of sense, and acts like a chief minister to the lord of the body. The five Pránas are only functions or variants of the Principal Breath (the Principle of Life) which is a separate entity like the mind or the ego. But the mind and the ten organs of sense are separate entities, though they are dependent on the Prána, for it brings about their stimulation. It is a mysterious principle inhering to every soul along with the psychic organs even after its migration from a body and unfolds itself on the adoption of a new corpus by the soul. Thus it is an inherent eternal attribution of the soul.

6. ORGANIC EVOLUTION

The whole Hindu theology is permeated with the basic doctrines of the transmigration of souls and of the gradual evolution from the lower to the higher forms of

life. The Hindu books on ethics are unanimous in declaring that the human body can only be obtained by passing through more or less of 8,400,000 lower births through the accumulation of merit.

We read in Manu (XII. 9) that a soul is born as a plant owing to the sins committed by the body; it becomes a bird or a beast for the sins of speech, and an outcaste for the mental sins.

The Chhándogya Upanishad (V. 10. 6) details the worldly journey of a soul descending from the worlds of the moon and the sun after the expiration of its meritorious deeds. The cause of this return to transmigration has been reasoned out by the Sánkhyas in the Sánkhya Pravachana Sutras (VI. 56.) The fallen soul lives for some time in a dormant condition in the mist, cloud and rain, and is then born in the vegetable kingdom as rice, barley, herbs, trees, sesamum, plants, beans, etc. "Thence, verily, indeed, it is difficult to emerge; for only if some one or other eats "him" as food and emits him as semen, does he develop further." From this point there is a constant rise and fall in lower or higher bodies of animals.

Elsewhere in the same Upanishad (V. 10. 7) it is stated that the men whose conduct in this world has been good, quickly attain some good birth, as that of a Brahmin, or a Kshatriya or a Vaishya. But those whose conduct here has been evil, quickly attain an evil birth—the birth of a dog, or a hog, or a chándála.

The following passage of the Kaushítaki Upanishad (I. 2) is very clear and interesting on the point:—"All who depart from this world, go to the moon. In the bright fortnight the moon is gladdened by their spirits;

but in the dark fortnight it sends them forth into new births. Verily, the moon is the door of Swarga. Him who rejects it, it sends on beyond; but whoso rejects it not, him it rains down upon this world; and here is he born either as a worm or a grasshopper or a fish or a bird or a lion or a bear or a serpent or a tiger or a man of some other creature, according to his deeds and his knowledge."

Let us read the emphatic teachings of the Bhagwad Gita (II. 27; XIV. 14). "To that which is born, death is indeed certain, and to that which is dead, birth is certain. Meeting death in Sattva, one attains to spotless regions, passing away in Rajas, he is born among men; and dying in Tamas, he is born in the wombs of the irrational." [1]

This doctrine of metampsychosis rests upon the basic immortality and specific individuality of a soul, and upon rewards of punishments according to actions performed during a man's life when a soul is a free and responsible agent to do good deeds or bad. The lives of lower animals and of vegetables are meant only for suffering punishments for deeds done in a human life. Man's life is really the central point above or below which a soul has to make its journeys for the sake of ultimate liberation from the cycle of births and deaths. However, paradoxical it may appear, yet it is undoubtedly true that the continuity of a progressive evolution in body, mind, and spirit is proved and strengthened by the doctrine of transmigration.

7. CLASSIFICATION OF ANIMALS

The usual classification of animate beings mentioned

1. Shanti Parva, Chapters. 202, 203, 206, 210.

in numerous Hindu books, comprises two main divisons of immobiles and mobiles.

The first group of eruptive beings which are called immobile *Oshadhis* are divided into four sub-classes:-[1]

Vanaspatis are those which bear fruit without blossoming, just as Plāksha, Udambara.

Vrikshas are those trees that bear both fruits and flowers, as mango and jambuline trees.

Virudhas are shrubs and creepers that trail on the ground

Oshadhis are these plants which die with the ripening of their fruits, such as cereals.

The Jainas add earth beings, water beings, air beings and fire beings to the species of immobile living creatures. The bodies of these four kinds are believed to be made respectively of the particles of earth, water air and fire.

The animals are classified on the basis of their origin thus:—

(1) *Udbhija*-eruptive or metamorphic, bursting forth from the ground or some previous unmanifest cause, like all vegetable organisms, as frogs, coccideas, etc., which are born of decomposed vegetable matter.

(2) *Swedja*-born of moisture and heat, spontaneously or asexually generated as ants, worms, insects, lice, bugs, etc. These are abiogenous creatures.

(3) *Andaja*-oviparous or born of an egg, as fishes, snakes, reptiles, birds, etc.

(4) *Jarayuja*-viviparous or placental, as men and other mammals both carnivorus and herbivorus.[2]

1. Cf. Ait. Up. III, 5; Kath. Up. V. 7; Manu, I. 46-48.

2. Ait. Up. V. 3 also mentions these four kinds. Cf. Chhand. Up. VI. 3. 1; Manu, I. 43-45; Shanti Parva, 237. 11-15.

It is interesting to note here that the Hindus recognized the existence of a common body for many souls-living protoplasms. While an individual soul usually has an individual body all alone to itself, there are animals and vegetables growing under ground like potatos, etc., which have many living centres.[1]

The Jaina classification of animals depends upon the number of senses possessed by each sentient being. The least developed animals as shell-fish, worms, etc., have the two senses of touch and taste, others more developed have three, others four, and then the most developed like the man, are equipped with five senses.[2]

The order of progress has thus been very roughly chalked out in the Garuda Purána. Vegetables, worms, goats, birds, animals, men, the righteous men, the thirty-three deities, and also the liberated, *all in the above order*, wear and cast aside the four sorts of bodies thousands of times. One becomes a man by good deeds, and if he becomes a knower, he attains liberation.

The embodied soul can nowhere attain the knowledge of truth in the eighty-four lakhs of bodies except the *summum bonum* of all these forms-the human shape.

That man is the *summum bonum* of all existence, has been distinctly stated by Sushruta. "The Purusha (Man) is the greatest of all created beings, because all other forms of life are made to minister to his wants on earth."[3] Bhishma gives expression to the popular

1. Karma Philosophy, pp. 48-49.
2. Cowell, S. D. Sangraha, p. 51.
3. Vol. I. p. 10 A crude conception of evolution is given in Brih. Up. I. 4. 1-4.

belief that amongst all living creatures man is said to be the foremost.

There is some difference in the stages of evolution detailed in the Puránas. The Bhágwata has:

I.	Manifestation of Intellection Elemental Evolution Sensorial Manifestation	Prákrita or Primordial
II.	Rooted Beings Animals Deities Men, Virtuous Beings composed of Sattva and Tamas.	Vaikárika or Modificatory
III.	Natural-Modificatory or Kaumarika Sarga.	

The Váyu and Agni Puránas postulate the following order:—

Mahat	Támas sarga without intellect
Ahankára	
Bhútadi	Rooted Beings
Sensorial	Lower Animals
Deities containing mind	Men.

In the Aitreya Upanishad the same idea has been allegorically developed. The five divinities of the senses wanted a sphere of rest and satisfaction. The creator asked them to enter the cow, the horse, etc; but the organs were not satisfied with the various species of lower animals. Then man was brought before them. They rejoiced at the sight and said:-" Well done in truth." Therefore man alone is well-formed'. The Hindu liturature takes man to be the central being, the individual soul gains divinity or animal corpus by deeds done in the human existence.

1. Bhag. P. III. X; Vayu P. VI. 61-70; Agni P. XX. 1-6.

The writer of the Chhândogya Upanishad believes in the eternity of soul and differentiates human souls from those to be found in animal species. Human souls retiring from the lunar and solar spheres do *not* cling to some of the vegetables, but are born as vegetables and corns as intermediary stages for assuming birth as animal and human beings. Organisms eaten, digested and transferred through the virile fluid to the female ovum are the causes of the birth of men and animals. It is thus maintained that "Life alone produces life and the germs of life are eternal." However, the method of the generation of small insects like flies, worms, etc., which are continually returning or reborn here is different from the preceding. They are born to die and die to be re-born.

They have no interim of rest from this ever-recurring cycle of births and deaths. They are unlike some of the human souls which go to the Lunar and Solar Regions for enjoying immunity from this painful succession. Exactly the same theory has been propounded by Saint Jâbâli in the Brihad. Upanishad (VI. 2. 16).

The probability of the existence of higher types than human beings in other worlds has been admitted even by Haeckel, so we need not be surprised at Kapila formulating in his atheistic system the existence of super-human types in this vast cosmos. Transcending science the German scientist-philosopher speculates on the forms of life thus:—

"It is very probable that these processes have gone on like-wise on other planets, and that other planets have produced other types of the higher plants and animals, which are unknown on our earth; perhaps from

some higher animal stem, which is superior to the vertebrate in formation, higher beings have arisen who far transcend us earthly men in intelligence."

The thought of the Brihad Vishnu Purána is of immense importance in the history of human progress. Its value is likely to be under-estimated by some, but over-rated by others. The propounder of the theory can adequately be called a precursor of Darwin. It is therefore important to notice the very words of the statement.

Good deeds ought to be performed, as a soul attains a human body after having passed through 8,400,000 births as under:—

20	lakh	species	of vegetable kingdom.
5	,,	,,	,, waterborn fishes.
9	,,	,,	,, reptiles and amphibians.
10	,,	,,	,, birds.
30	,,	,,	,, mammals.
10	,,	,,	,, monkeys.

Thus the progressive evolution or the ascent of a soul till it becomes the paragon of nature according to the Indian Rishis and Western scientists is exactly the same.

8. THE ASCENT OF LIFE

Indian Philosophy and *Western Science*

Plants
Fishes
Reptiles
Birds
Mammals
Monkeys
Man.

This similarity seems to be marvellous when we remember what an intellectual darkness was enveloping the world when the Purána was written.

9. FIXITY OF SPECIES

The permanent stability of species forms the central doctrine, though the idea of absolute fixity of species, vegetable and animal, was not adhered to. The Hindu writers have spoken of the chrysallis being metamorphosed into a silk-worm or caterpillar, of the tadpcle growing into a frog, of changes wrought in the breeds of horses, sheep and dogs; of new species produced by grafting and cross-breeding; and also of changes produced by climatic conditions, habitat and nutrition. The permanent influences of heredity were not neglected. These topics will be discussed in a separate chapter.

The author of the Garuda Purána has again and again used the words "order" and "then," showing that he believes the journey of a soul to be in an ascending order in the succession that he has proposed. This evolutionary or progressive process of the higher opportunities of the unfoldment of animal life is worthy of our attention. It is strange that the successive stages mentioned by the Hindu sage are almost similar to those now recognized by evolutionists. The particular mention of monkeys between mammals and men ought not to be passed over.

Though believing in progressive evolution, the Hindu philosophers do not propound the transformation of a specie into higher than the transformed The modern hypothesis of the descent of man from monkeys, of birds from reptiles, of reptiles from fishes is not

recognized by them. They seem to postulate each specie as inherently distinct and, in a way, permanent-existing as separated receptacle for the residence of souls to work out their destiny for final release. Like Aristotle and Lyell, the Hindu philosophers believed in the fixity of species. We are told that organic creation is governed by laws under which the same species produce the same species.[1] *The theory of transmutation was applied in the inorganic world but not extended to the organic kingdom.* This does not preclude the modification or dying out of some species which were incapable of adapting themselves to their environment.

The will of God marked off the limit of every species and ordained it to remain constantly immutable. Every type is characterized by an organic unity of its own and there is no metamorphosis of one into the other.[2]

This idea does not preclude transformation in the organisms due to the influence of nutrition, environment, climate, temperature and mode of life of the living environment constituted by other species. Even recognizing the environmental effects on the form and habits of animals and the perpetual changes produced by desires and aversions or by their pleasures and pains, the Hindu savants adhered to the theory of the

1. Shanti Parva 205. 25.

2. Even Professor Haeckel saw no alternative between the creation of independent species by a Personal God-by a "Creator" who " becomes an organism, who designs a plan, reflected upon and varies this plan, and finally forms creatures according to it; as a human architect would construct his building, " and the denial of all plan or purpose whatever. ' History of Creation ', Vol. I, p 73.

invariability of species against that of the transmutation of species. They observed the partial changes made by the environment, they well-nigh discovered the cause of the processes of transformation, yet they did not postulate the doctrine of organic transmutation. Still the Pauranik classification seems to be an advance on that of Linnaeus.

It is strange that Darwin should have been moving in the vicious circle of empty words and should have dug up a chasm under his own feet. Natural selection is postulated by him to be the prime cause of the variation of species. It is, however, nothing but another name of nature. "Nature," writes he, "if I may be allowed to personify the natural preservation or survival of the fittest."

In another place, this nature is identified with natural laws. 'So, again,' says he, "it is difficult to avoid personifying nature, but I mean by nature only the aggregate action and product of many natural laws, and by laws the sequence of events as ascertained by us."

Then he proceeds to ascribe rationality and divinity to this agent. Natural selection which was posited in a large part of the thesis as a potent factor of the variation of animals, is described as a rationally supervising cause. "It may metaphorically be said that *natural selection* is daily and hourly scrutinizing throughout the world the slightest variations."

Consequently, it is evident that the animal species instead of being the results of blind forces, or chapters of accidents, are created and maintained through rational and unalterable laws. Then it is 'not by

natural selection but by *naturat election*' that the servival of the fittest is secured. Can we deny to man the power to alter and control his natural environment? Has he been the play of blind forces or has he mastered the natural forces in a thousand ways to add to his physique, beauty, comfort, happiness?

Thus the Darwinian theory of variation and selection due to local, climatic, selective or mechanical forces was anticipated by the Hindus, but the theory of the transmutation of species was discarded. The latest researches seem to have led scientists to discard the Darwinian idea. The recent theory of heterogenesis or discontinuous descent amounts to direct creation. The arguments advanced to prove this theory are summarized below :—

10. THEORY OF HETEROGENESIS

(1) Origination, (Embryology, Foetal development shows sudden advances).

(2) Modification, (Heterology and Teratology exhibit striking differences).

(3) Hybridization, (Endogamy, Inter-sterility of species, sterility of offspring).

(4) Hereditary transmission, of many but not all individual variations. (Mendel).

(5) Organic non-conversion, (Few of the vital organs are inter-changeable).

(6) Definite gradation, (stability of prime forms, inter-crossing of varieties).

(7) Discontinuous variation, (mutation, sudden appearance of new species-Mivart).

(8) Teleological pre-adaptation, (Rise of new organs anterior to adaptation—Korschinsky).

(9) Historic succession, (reveals innumerable, missing links," no transmission to "orders").

(10) Geographical distribution, (cannot account for species, now abandoned).

This is believed to apply to many forms of life but especially to man. The factors are teleological and internal. They require a creating force at every link of the chain.

It will be seen that on the new theory of Heterogenesis, which is apparently gaining ground, there is a distinct implication that the leaps from one species to another cannot be adequately explained by indefinite modifications, but require a mysterious propelling power which is frankly above and beyond the ordinary mechanical force of nature. If this principle be once admitted, and it is based on a few but very forcible cases of " upward leaps," it is clear that we have a very strong case for a transcendent and super-organic force as directly operating on the bioplasmic material.[1]

1. The Psychology of the Superconscious, p. 6.

CHAPTER VIII

MODERN FACTCRS OF ANIMAL EVOLUTION IN HINDU SHASTRAS

The chief factors affecting the process of animal evolution are said to be heredity, function and environment. The Hindu Shastras have to some extent discussed the action of these factors on organisms in general and on the human species in particular. There are some stray thoughts in Sushruta and other medical works on the Weismannian theory of the inheritance of acquired characters. The combined action of the two sets of factors-the environmental stimuli and the complex of germinal characterstics on the animal structure, activity, habit, organs has also been recognized by the Hindu doctors.

1. PERMANENCE OF SPECIES

Sushruta lays down that the adjustment of the different limbs and organs of the body of a child in the womb at their proper places, the non-development of hair on its palms and soles, and the subsequent cutting and falling off of its teeth *are spontaneously effected according to the laws of nature after the model of its own species.* The development of the limbs and the members, etc., of a foetus in the womb is natural and spontaneous.[1] Thus it is postulated that the fixity in the general features of a certain species is secured through natural laws.

1. Sushruta, II. 133, 143.

2. VARIATION IN SPECIES

The effects of the variation of atmospheric heat or humidity, change of seasons, time of day, disturbance in the physical environment of man upon human and animal bodies have been recognized and investigated in Hindu medical books.[1] The same causes affect the growth and potency of the vegetal kingdom. The plants grown in various seasons have various affects on the bodies consuming them. 'Water and vegetables retain their natural properties when the seasons are natural, and do not exhibit contrary features. Then they tend to increase the appetite, vitality, strength, and power of the human system. A season, exhibiting unnatural or contrary features, affects or reverses the natural properties of water and vegetables peculiar to it, which, drunk or partaken of, cause dreadful epidemics in the country. The best safeguard lies in not using such defiled water and vegetables when an epidemic breaks out in the country. The bodily humours such as wind, etc., are disturbed and aggravated by the contrariety, excess or variations in the characteristic features of the seasons.'[2]

The influence of the day on the sex of a child is universally acknowledged by Hindu physicians. A visit to one's wife on even days during the catamenial periods (twelve days in all from cessation of the flow) leads to the conception of a male child, while an intercourse on odd days results in the birth of a daughter.[3]

The Hindu physicians have propounded the doctrine that the laws governing the production of sex are

1. Sushruta, I, pp. 229, 231.
2. „ I, pp. 51-55.
3. „ II, p. 136.

controllable by man. The sex of a child is not an accident, but can be positively determined by the parents.

3. DEVELOPMENT OF AN EMBRYO

The science of embryology was not neglected in ancient India. Dhanvantari criticises the opinions of five preceding or contemporary embryologists on the growth of the foetal body:—

Shaunaka thought that the head of the foetus is probably first developed, since it is the only organ that makes the functions of all other organs possible.

Kritavirya taught that it is the heart that is first developed, since it is the seat of mind and intellect.

Parášhara held that the development of the umbilical region of foetus must necessarily precede that of any other parts of its body, inasmuch as it is through umbilical chord that an embryo draws its substance from the mother's body.

Márkandeya propounded that the hands and feet of a foetus are first to be developed, since they are the only means of movements in the womb.

Subhuti Gautama said that the development of the trunk is the earliest in point of time, since all other limbs and organs, lie soldered to and imbedded in that part of the body.

But Dhanvantari does not agree with these five views. His opinion runs counter to all. He holds that the development of all the parts of the body of an embryo goes on simultaneously, and that they can not be perceived or detected in their earlier stages of development in the womb owing to their extremely attenuated size. As the stone, marrow, pith, etc. of a ripe and matured

mango-fruit or the sprouts of a bamboo cannot be separately perceived in the earlier stage of their growth but are quite distinguishable in the course of their development; likewise, in the early stage of pregnancy, the limbs and organs of the foetus are not perceptible on account of their extremely attenuated stage, but in course of time they are distinctly perceived in their development.[1]

4. COMPLEXION OF CHILDREN

There was a school of physicians who adhered to the theory that the colour of the body of a child was determined by the colours of the food taken by its mother during the period of gestation. The mutual influence of the vegetal and human kingdoms was observed by Váchaspati.

'The trees and plants produce varied tastes and colours in animals, for it is by eating these that they acquire richness of colour, etc. Animal products can again produce changes in plants. By sprinkling blood on the roots of a pomegranate tree, it may be made as big as a palm.'[2]

Another school accepted the hypothesis that the complexion varied according to the preponderance of any one of the five elements over the other at the time of conception. For instance,

Colour	*Subsidiary*	*Predominant*
White	Fiery Principle	Watery principle
Black	,, ,,	Earth.
Dusky	,, ,,	Earth and Ether.
White-dusky	,, ,,	Water and Ether.

1. Susbruta, II, pp. 140-141.
2. Dasgupta's Yoga.

On the other hand, Bhrigu teaches that the colour of the human body depends upon the degree of virtue accumulated by a soul in its previous birth. Most virtuous people like Brahmans have white complexion, Kshatriyas have red, Vaishyas, yellow, and Sudras have black colour. Thus the theory that the institution of castes was based upon the colour of the body, is fully substantiated by the teachings of saint Bhrigu.[1] This theory is very extravagantly explained by Ushnas and Parashara too.[2]

According to the former, creatures have six colours, viz., dark, tawny, blue, red, yellow and white. These colours are produced by mixtures in various degrees of the three qualities of Rajas, Tamas and Sattva thus:—

Colour	*Predominant*	*Supperssed*	*Normal*
Dark	Tamas	Sattva	Rajas
Tawny	,,	Rajas	Sattva
Blue	Rajas	Sattva	Tamas
Red	,,	Tamas	Sattva
Yellow	Sattva	Rajas	Tamas
White	,,	Tamas	Rajas

The Jain philosophers attributed the difference of colour to 'colour activity.' By reason of this activity or living force, bodies assume black, blue-black, green, yellow, red, white colours and their combinations. But the doctrine of colour being an index to the virtue and vice of a man was *not* upheld by Jain philosophy. It was well said that 'a white man may be a thief and a murderer, a black man may be virtuous and spiritually advanced.'[3]

1. Shanti Parva, Chap. 188.
2. Shanti Parva, 280. 33-42; 297. 2-9
3. The Karma Philosophy by V. R. Gandhi, pp. 43-44.

It is surprising that even modern science has not solved the mystery of the origin of colours. Dr. Klaatsch says that we must admit that we have as yet no satisfactory explanation of the causes of differences in skin-colour.[1]

5. MAN IS WHAT HE EATS

This principle of Fourbach enunciated by Plato centuries before, was fully propounded by the Hindus. A cursory reading of the Sushruta Sanhita deepens the conviction that a very great emphasis was laid upon proper diet as it was considered to be a very important modifying cause of the physique and mentality of man and beast. It has ben shown by Sushruta that as every part of the body is made from the essence of food, man is nothing but the essence of food (*Purushah anna rasa mayah*). *Purusha* here stands for the whole of organic creation, and thus man, beast, bird and plant-one and all are personifications of their meals.

An Upanishadic text goes beyond that. It declares mind to be the essence of food (*Anna mayo manah*).

Lord Krishna taught the great lesson that mind and spirit of a person are directly affected by the food taken by him.[2] Bhishma too has subscribed to the same view.[3] Bhrigu declares the mind like the body to be made of the five elements.[4] We may well compare these thoughts with similar ones from Plato. " From the character of the food given by the earth which not only affects

1. " The Evolution and Progress of Mankind " by Klaatsch, p. 288.
2. Bhagavad Gita, XVII. 8-10.
3. Shanti Parva, 214. 14-23.
4. Ibid. 187. 20.

the bodies of men for good or evil, but produces similar results in their souls...............".[1]

Sushruta has detailed the dietic properties of a very large number of articles, and given elaborate instructions, what diet should be taken in different seasons and in different ailments. Therapeutic properties of different kinds of water and milk were also thoroughly studied. Diets which aggravate or alleviate the bodily humours have been frequently prescribed. In fact, a very comprehensive system of dietics was developed in ancient India.[2] Sushruta subscribes to the theory that human body and character vary in accordance with the nature of the country and the features of the seasons. He also attributes the spontaneons aggravation and subsidence of the morbific diatheses to the different quarters of the day and night.

The fundamental factors of the variation are differences in nutrition and climate. The bodily humours such as wind, phlegm and bile are disturbed and aggravated by the contrariety, excess or variation in the characteristic features of the seasons. For instance, phlegm is deranged in spring, bile in autumn, and wind in the rains and thus these derangements give rise to numerous diseases and variations of tempraments. Diseases due to the deranged state of the three morbific diatheses are cured of themselves in the contrary seasons by the variations of atmospheric or earthly temperature, rainfall, etc.

Oshadhis (medical plants and cereals) sprout during the rains and are enfeebled in their properties.

1. Laws, 750.

2. Sushruta, I, pp. 182-211: 418-571. Cf. the views of Hippocrates on diet in Greek Thinkers, I, 275-315.

Water becomes muddy or turbid and the earth is covered over with fresh deposits of washed off or silted mud. The sky becomes overcast with clouds, and the wind, charged with an excess of humidity, dulls the appetite and organisms of beings. Hence the food of beings which principally consists of tender and new-grown vegetables of feeble potency, considerably vitiated by the turbid water partaken of as drink during the season, proves acid in its digestive reaction, and germinates excessive bile in the human system. In autumn the sky becomes cloudless, the mire is dried up, and the bile originated and accumulated during the rains, is liquefied by the rays of the sun and gives rise to bilious diseases.

Plants and vegetables (Oshadhis) that grow or sprout during the rainy season, are matured in course of time and ripen in their virtues and potency in the season of Hemanta. The water becomes clear, cool and heavy in this season. The sun's rays become feeble and mild; and the winds moistened with frost and snow, make the human system a little numb and heavy. Hence water and vegetables partaken of in Hemanta are divested of their properties of acid reaction after being assimilated in the human system, but they give rise to an accumulation of phlegm in the body owing to their heaviness, sliminess, and cooling and oily character. In spring the phlegm thus accumulated in the body is liquefied and ushers in diseases due to a deranged state of that bodily humour.

The said plants and vegetables, in their turn, lose their sap, moisture and nutritive element in summer, and become dry and extremely light. In the same

manner water becomes drought-making (produces a state of parchedness in the organism–Ruksha) in its virtue, and considerably loses its natural coolness and nutritive properties. The sun's rays dry up the natural moisture of the human system, and accordingly water and vegetables largely partaken of in summer, give rise to an accumulation of wind in the system owing to their lightness, dryness, or expansive and drought-making properties. Subsequently wind thus accumulated in the summer, is agitated by the rains and cold winds in the forepart of the rainy season (Pravrit) when the ground is flooded with water and thus gives rise to diseases which are incidental to a deranged state of the bodily wind.

Likewise the features, which specifically mark the different seasons of the year are observed to characterise the different parts of a complete day and night. In other words, traits peculiar to spring time exhibit themselves in the morning; the noon is marked by all the characteristics of summer; the evening by those of the rainy season; the midnight by those of autumn; and the hours before dawn by those of Hemanta. Similarly, like the seasons of the year, the different parts of the day and night are marked by variations of heat, cold, etc. In other words, the deranged bodily humours such as wind, bile, etc. naturally and spontaneously accumulate, aggravate, or subside during the different parts of the day as they do in the different seasons of the year (represented by those parts of the day and night as stated above).

Water and vegetables retain their natural properties when the seasons are natural, and do not exhibit

contrary features, and they then tend to increase the appetite, vitality, strength, and power of the human system. A season, exhibiting unnatural or contrary features, affects or reverses the natural properties of water and vegetables peculiar to it, which, drunk or partaken of, cause dreadful epidemics in the country. The best safeguard lies in not using such defiled water and vegetables when an epidemic breaks out in the country.

Sometimes the pollens of poisonous flowers of grasses, etc., wafted by the winds, invade a town or a village, and produce a sort of epidemic cough, asthma, catarrh, or fever, irrespective of all constitutional peculiarities or deranged bodily humours agitated thereby.[1]

The effects of winds on human and animal bodies were thus minutely studied at the time of Sushruta.[2]

Naturalization to an environment has been thus defined by Sushruta. 'A particular country, or a season of the year, a particular disease or a peculiar mode of living, any particular kind of physical labour or exercise, or specific properties of the water of any particular locality, or day sleep, or a juice of any particular taste, is or are said to be congenial (Satmya) to a man, or a man is said to be naturalized to these conditions and environments, when they fail to produce any injurious effect on his health, though naturally unwholesome to others.'[3]

6. CLIMATE AND CHARACTER.

From the climatic point of view three broad divisions of a country have been made by Sushruta.

1. Sushruta, I, pp. 41-52. 2. Vol. I, pp. 192-193.
3. Sushruta, Vol. I, p. 325.

A swampy country is one which contains a large number of pools, and is wooded and undulated with chains of lofty hills traversing its area, and which is impassable owing to its networks of rivers and sheets of accumulated rain-water rippling before the currents of the gentle, and humid air. *It is inhabited by a race of stout, shapely and soft-bodied men, susceptible to Vataja and Kaphaja diseases.*[1]

The Jangala or woody country presents a flat surface; its dull monotony is enlivened here and there by scanty growths of thorny shrubs and the tops of a few isolated hills or knolls, and in it the waters from springs and wells, accumulated during the rains, become nearly drained, and strong gales of warm wind blow (during the greater part of the year) *making its inhabitants, though thin, strong, tough and sinewy in their frames, subject to attacks of diseases.*[2]

The ordinary country exhibits features common to both the aforesaid classes. It derives the epithet of Sadharana from the ordinary character of its heat, cold and rainfall, and from the fact of the bodily humours maintaining their normal state of equilibrium within its confines.[3]

Climatic cures-Having laid down that many diseases are due to the physical environment in which a man has been living, Sushruta advises a change of climate, drink and diet to effect a speedy cure of such maladies. His words are:—

A disease originated in, and peculiar to a particular country fails to gain in intensity, if brought over to,

1. Sushruta, Vol. I, p. 325.
2. " " " " 326.
3. " " " " 326.

and transplanted in a country of a different character. A man, who observes a regimen of diet and conduct soothing to the deranged bodily humours accumulated in the country he has come from, and aggravated and manifest in the shape of a disease in the country he has been living for the time being, need not apprehend any danger from the altered conditions of his new abode, for the fact of his not observing a regimen of diet and conduct regarded beneficial in consideration of the physical features of the latter place. A disease of recent growth or origin unattended with any distressing or unfavourable complications and unsuited to the nature of the country, the season of the year, the temperament, and the adopted or congenial or naturalized traits of the physique of a patient with a regular and unimpaired state of digestion (Samagni), and who exhibits traits of strength, fortitude and longevity and and commands the co-operation of the four commendable factors of a course of medical treatment, readily yields to medicine.[1]

The preceding words deserve special notice, as they show how the character of the inhabitants varies with the character of the country. The physical interpretation of history was brought into prominence by Buckle, Rogers, Loira and others during the last century, but the doctrine was fully developed by the time of Sushruta in India, and later on clearly stated by Hippocrates in Greece. The following extract from the pen of the Greek physician will afford an interesting comparison between the thoughts of the two leading physicians of India and Greece. Writes Hippocrates:

1. Sushruta, Vol. I, p. 326.

Where the soil is rich and soft and well-watered, and where the water remains extremely near the surface, so that it is tepid in summer and chilly in winter, and where the climatic conditions are also favourable, the inhabitants will be fleshy, loose-jointed, flaccid, unenergetic and poor-spirited as a general rule. Laziness and sleepiness will be prominent among their characteristics, and they will be clumsy instead of being neat or quick at skilled occupations.

Where the country is rocky, waterless and without vegetation, and suffers from severe winters and from scorching suns, you will find the inhabitants bony and without spare flesh, with well-articulated joints and muscular shaggy bodies. Such constitutions are instinct with energy and alertness, and their possessors have headstrong, self-willed characters and temperaments, with a tendency toward ferocity instead of tameness, and with a superior quickness and intelligence in skilled occupations and a superior aptitude for war. You will further find that the non-human fauna and flora of a given soil likewise vary according to the quality of that soil.[1]

7. METABOLISM IN ORGANISMS

The moderns have developed the theory that every organism is being renewed constantly. In this metabolic process the constructive or anabolic forces should predominate over the disruptive or katabolic forces. This theory was expounded to King Janaka by Sulabhá, a saint from among the fair sex.[2]

1. Greek Historical Thought, p. 168.
2. Shanti Parva, 321. 122-125.

"The constituent elements of the body, which serve various functions in the general economy, undergo change every moment in every creature. Those changes however, are so minute that they can not be marked.

"The birth of particles and their death, in each successive stage, can not be marked. O king, even as one can not mark the changes in the flame cf a burning lamp.

"When such is the state of the bodies of all creatures, i. e., when what is called the body is changing continually like the rapid motion of a horse of good mettle,—who then has come whence or not whence, or whose is it or whose is it not, or whence does it not arise? What connection does there exist between creatures and their own bodies?"

Such is the mechanico-corpuscular theory of Nun Sulabhá anticipated millenniums before our age.

8. HEREDITY

It is an undoubted fact that the science of Eugenics formed the foundation of the sexual relations among the Hindus even as early as 1,000 years before the Christian era. The study of agencies under social control that may improve or impair the racial qualities of future generations, either physically, mentally, or spiritually, owes its renaissance to Sir F. Galton, but Sushruta, the Prince of Physicians, embodies it in his treatise. The ancient Indians adopted various means to produce the finest types of humanity with regard to physique, intellect, character and beauty.

The general principles of Eugenics became the intellectual creed of every law-giver and medical authority. The Hindus believed that the selection,

variation, improvement, perfection of the human race, like the breeding of animals and the growth of plants, was under the control of the individuals and society. They discovered the important truth that mental and moral characters are as strongly inherited in the human kingdom as physical characters in the animal and vegetable kingdoms. They did not ignore the importance of environment, and up-bringing or nurture, yet greater stress was laid upon nature. The post-natal environment was considered to be inferior to the pre-natal and hereditary nature. Sushruta has thus co-ordinated these two factors in the formation of character :—

(1) A co-ordination of the four factors of menstrual period, healthy womb, nutrient liquid, i. e., chyle of digested food, healthy semen and the proper observance of the rules is necessary for the conception and develoment of a healthy child just as the proper season, good soil, water (containing nutrient matter) and vigorous seeds together with proper care, help the germination of strong and undiseased sprouts. A child which is the fruit of such conception is destined to be beautiful, of vigorous health, generous, long-lived, virtuous, attached to the good of its parents and capable of discharging its parental obligations[1].

(2) It is postulated by Sushruta that the formation of hairs of the head and body, beard and moustaches, bones, nails, teeth, veins, nerves, arteries, semen and all the steady and hard substances in the organism of a child depends upon the paternal element. The mother, through her chyle contributes to the formation of flesh, blood, fat, marrow, heart, umbilicus, liver, spleen,

1. Sushruta, Vol. II, p. 129.

intestines, anus (Guda) and all other soft matters in the body[1]. Shaunaka is said to have propounded the same theory with a little variation[2].

(3) Valour, healthfulness, strength, glow and memory are the products of a child naturally born with physiological conditions of the parents.[3]

(4) Diseases are ascribed to two causes, such as congenital defects or injudicious diet. The first category is due to defects in the seeds of one's parents and includes such diseases as leprosy, phthisis, hemorrhoids, etc. The congenital type usually follows such causes as an improper conduct on the part of the mother during the period of gestation, etc., and embraces such defects or maladies as (congenital) blindness, deafness, dumbness, nasal voice, and such monstrous aberrations of nature as congenital cretinism, and the births of dwarfs and pigmies.[4]

9. RACE-CULTURE

Hence *persons suffering from congenital diseases were not allowed to be married.* Men suffering from an abundant growth of hair, hemorrhoids, phthisis, impotency, epilepsy, white and black leprosy were to be avoided[5] in marriage.

Similarly, a maiden suffering from any serious disease, having more or less limbs, having red hair and eyes, having redundant hair or no hair, was not to be married[6].

1. Sushruta, II. 130.
2. Shanti Parva, 307. 1-6.
3. Sushruta, Vol. II. P. 142.
4. Ibid. Vol. I. P. 229.
5. Mann, III. 7.
6. Manu, I. 8-10; Vishnu, 24, 12-16; Yajn. I. 54.

Thus the ellimination of the unfit, the deformed, the diseased, the impotent, and the illiterate was secured by law and religious ordinances. *Sushruta was against early marriages and promiscuous breeding.* "An offspring of a girl below the age of *sixteen* by a man below *twenty-five* is usually found to die in the womb. Such a child, in the event of its being born alive, dies a premature death or else becomes weak in organs. Hence a girl of extremely tender age should not be fecundated at all. An extremely old woman, or one suffering from a chronic affection (of the generative organ), or afflicted with any other disease, should not be likewise impregnated. A man with similar disabilities should be held likewise unfit[1]."

Mr. Bernard Shaw has truly lamented the lack of legislation to control the sexual and marital relations of the human race. "Promiscuous breeding has produced a weakness of character that is too timid to face the full stringency of a thoroughly competitive struggle for existence, and too lazy and petty to organize the commonwealth co-operatively. Being cowards, we defeat natural selection under cover of philanthropy; being sluggards, we neglect artificial selection under cover of delicacy and morality[2]."

(a) Sushruta lays down that the temperament of a man is determined by the preponderance of the particular defect at the time of his generation and is marked by that preponderant defect. He then proceeds to describe the various temperamental defects which can be inherited by the children.[3]

1. Sushtuta, Vol. II, p. 233.
2. Man and Superman. p. XXIII.
3. Sushruta, Vol. II, pp. 154-158.

(b) The conduct and character of a child and its inclination to particular dietary are determined by those of its parents during the act of fecundation.

(c) The child of a mother whose wishes are not honoured and gratified during pregnancy stands in danger of being born palmless, hunch-backed, lame, dumb, or nasal-voiced through the deranged condition of the Váyu of its mother's body.[1]

(d) The effects of the longings of the enceinte on the child will prove an interesting reading :—

It is said that the enceinte longing for a royal interview during her gestation (fourth month) gives birth to a child, who is sure to be rich and to hold a high position in life. Her longing for fine silks, clothes, ornaments etc. indicates the birth of a beautiful child of aesthetic taste. The birth of a pious and self-controlled child is indicated by its mother's longing for a visit to a hermitage. The desire of a pregnant woman to see a divine image or an idol predicts the birth of a child in her womb who would grace the council of an august assembly in life. Similarly, a desire to see a savage animal on the part of a pregnant woman signifies the presence of a child of savage and cruel temperament in her womb. A desire for the flesh of a Godha indicates the presence of a sleepy, drowsy person in her womb who would be tenaciously fond of good things in life. Similarly, a longing for beef on the part of the mother (during gestation) indicates the birth of a strong and vigorous child capable of sustaining any amount of fatigue and physical pain. A longing for buffalo-meat by the mother indicates the

1. Sushruta, Vol. II. p. 132.

birth of a hairy, valiant and red-eyed child (in her womb); a longing for boar-flesh indicates the birth of a drowsy child though valiant; a longing for venison indicates that of an energetic, determined and sylvan-habited child; a longing for Srimara-meat indicates that of a distracted person: a longing for the flesh of the Tittira bird indicates that of a child of timid disposition, whereas a desire on the part of the enceinte for the flesh of any particular animal indicates that the child in the womb will be of such stature and develop such traits of character in life as are peculiar to that animal. [1]

(e) Further we read in the Shastras:—"A woman, though at a distance, conceives a child of the shape of the person she loves ardently and thinks of at the time. Just as a tree that grows is not different from the parent tree whether we plant a branch or sow a seed, so the main features of the child partake of the features of its father, though there might be slight changes due to the soil." [2]

10. TRANSMIGRATION

Environment and heredity, nurture and nature alone are not sufficient to explain the perplexing variety of character and thought in children living in the same atmosphere and born of the same parents. The traits acquired by the conscious self in one existence form the foundation of his action and thought in his next birth. The existence of geniuses can be explained only on the basis of this theory of the accumulation of acquired traits and their manifestation in a particular

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1. Sushruta, Vol. II. pp. 138-39.
2. " " " xii

birth. Such a result, in the words of Deussen, only attainable by an infinite process of approximation, tells not for immortality in the usual sense but for transmigration.

Sushruta only voices forth the general belief when he says that an honest, pious, erudite man, who has acquired a vast knowledge of the Sastras in his prior existence, becomes largely possessed of mental traits of the Sattvika stamp in this life too and also remembers his prior births (Jatismara). Acts similar to those, which a man performs in a prior existence, overtake him also in the next. Similarly the traits and the temperament which he had developed in a previous existence are likewise sure to be patent in the next[1].

Huxley has truly said in his 'Evolution and Ethics':—

"Like the doctrine of evolution itself that of transmigration has its roots in the world of reality, and it may claim such support as the great argument from analogy is capable of supplying".

(2) The laws of heredity are seen universally working in the vegetable, animal and human kingdoms, but they can not sufficiently explain the vast divergence in physical, mental, moral and spiritual traits of men. The only hypothesis of the undying personality of a moral Ego persistent through thousands of births and accumulating experiences during millions of years, offers a satisfactory explanation. Every child is the heir of all the good and bad deeds of his former births and hence he differs from his kith and kin.

1. Sushruta, II. 133.

(3) It has been asserted by the Yogins that they can recall the incidents of their previous births. Aye, it is given to all to develop their psychic powers and realize the existence of the eternal spark of life through the ever-changing flux of the corpus.

(4) If life is not an epiphenomenon, a metabolic or chemico-mechanical process, but an eternal entity, it can not have a day's or even a few moment's existence on this planet and be condemned to an eternity of inactivity. Immortality after death can only be correlated to eternality before birth. Immortality and epiphenomenon are as mutually exclusive as light and darkness.

(5) The doctrine of metempsychosis alone can explain the remarkable differences existing in the members of the same family and particularly between twins who are brought up in identical pre-natal conditions and have identical ancestry.

(6) The laws of eugenics fail to account for the phenomenon of infant precocity, or the birth of vicious children to men of saintly character and of saintly children to men of infamy, or the birth of physical and intellectual imbeciles to parents who are most highly equipped both physically and mentally.

(7) The rise and fall of nations can be satisfactorily explained on the hypothesis of metempsychosis.

(8) Freaks of affinity and disgust can be accounted for on the theory of transmigration. Prof. Max Muller gave expression to this Hindu belief in these words:— "I can not help thinking that the souls towards whom we feel drawn in this life are the very souls whom we knew

and loved in the former life, and that the souls who repel us here, we don't know why, are the souls that earned our disapproval, the souls from whom we kept aloof in former life."

(9) Lastly, if every new-born babe were a new soul-creation, there would be, except through heredity, no accumulation of the past achievements of the race and the individual. On the other hand, the hypothesis of transmigration ensures the impress of continuity, intensity and crystallization of all that was thought, done and achieved in the past. Every soul becomes a walking museum of the achieved past and a free maker of a bright and progressive future. Thus evolution resting upon the living link of the past ages becomes doubly ensured by metempsychosis.

CHAPTER IX

THE HINDU THEORY OF SOCIAL EVOLUTION

However strange it may appear, yet it is true that the main stages of social evolution described in some of the Puranas are almost similar to those propounded with a wealth of detail by modern evolutionists. From the accounts of the social evolutionary process preserved in Hindu books, several points of striking importance are summarized below.

1. CYCLE EVOLUTION

The Hindu idea of evolution is, contrary to that of the present age, not of continuous becoming and development; rather it partakes of the cyclic evolution and involution, that is, of a gradual onward movement, static condition and a decline followed by the same cycle of progress, rest and degress *ad infinitum.*

According to this doctrine, all the changes, both upward and downward, through which humanity passes, take place in stated periods in every cycle of creation. The whole duration of the evolved world witnesses the periodic recurrence of many four-aged cycles of human evolution or unfoldment of the economic life and of a slow, yet concomitant process of deterioration in moral and spiritual aspects.

There are many such revolutions of progress and degress or cycles of civilization in one creation, that is to say, in the entire evolved existence of this planet. Each one of these evolutions assumes the form of a parabola, for the courses of the process of progress and

degress of mankind can be represented to resemble the curve which a projectile theoretically describes. According to Hindu Chronology whose basic principles are quite unintelligible as yet, evolutions and dissolutions continually succeed one another without a break or lapse till the dissolution of the cosmos itself. One evolution covering a period of 4,320,000 years represents one and only one revolution, cycle, or parabola of civilization. *Such a parabola affects mankind as a whole and not a particular section af humanity. That is to say, at any specific time all races inhabiting this globe are either on the ascending curve of the parabola, or on the flat summit of rest or on the descent.*

No separate cycles or parabolas have been recognized for the various races. This is manifestly wrong. Even now we have various peoples living in all the stages of evolution. *There is no synchronism in progress and degress in the case of all races.*

It is really strange that the Hindu philosopher recognizing the co-existence of barbarians, Mlechhas, etc., with the civilized Aryans, could postulate all-embracing and uniform stages of civilization throughout this world. The whole mankind could not be in the iron or golden age. Portions of humanity might be in the Treta, others in the Dwapara and still others in the Kali yuga. But this diversity at any one period has not been, so far as I am aware, admitted by the Hindu philosophers.

2. THE GOLDEN AGE

Every recurring cycle or parabola is divided into four periods, the first of which is called the Satya Yuga covering 4 × 432,000, equal to 1,728,000 years of human reckoning, according to their hypothesis.

In this age men and women are not swayed by carnal desires, envy, malice, or anger. *They have no institutions of property, government or even of marriage.* It is this period which has been called the Golden Age of human existence on this planet. The infancy of the human race, characterized by the above-mentioned attributes, can appropriately be called golden. The preceding moral qualities attributed to the primitive man are the immemorial and innate Inheritance of every infant, and to a large extent, of the unregenerated man, still living in a state of nature. The other characteistics are equally existent in both the cases cited above. Hence it appears that the evolution of an individual man and of mankind as a whole, so far as the first stage is concerned, is considered identical by Hindu philosophers[1].

3. THE SILVER AGE

The Second period extending to 3×432,000, equal to 1,296,000 years, is called the Treta Yuga. During this age too, humanity lives in the natural state, but carnal desires, envy, anger, etc., make their appearance and gradually extend their sway over the minds of the people. *The institution of property in trees and their fruits and primitive places of residence develops.* The same characteristics are universally observable in our chidren who show an acute sense of exclusive ownership

1. Cf. Hesiod's account of the Golden Race of men. All good things were theirs, and the grain-harvest was yielded by bountiful Earth of her own accord abundantly, ungrudgingly while they, in peace and good well, lived upon their lands with good things in abundance (Greek Historical Thought p. 141).

in their sweets, dolls and other playthings. The same is true of the uncivilized negroes of Africa[1].

4. THE BRONZE AGE

In the third period of 2×432,000 or 864,300 years, mutual strife ensues by reason of the excessive development of passion, selfishness and covetousness. The woeful consequence of this universal struggle is a complete destruction of roots and fruits. *In this aweful distress the warring humanity, through the grace of God, comes to possess kings, laws, politcal organizations* to protect them, as well as seventeeen kinds of forest trees and fourteen sorts of domestic plants to be raised by cultivation. Progress in the art of agriculture is followed by a slow development of other arts and thus mankind is set on the path of civilization. This stage of human progress is also visible in individual developments when our doll-houses and other playthings are thrown away to tackle with the hard realities of a competitive world, when a boy begins to master the elements of arts and sciences, and then proceeds to comprehend the intricacies of the various branches of learning.[2]

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1. Hesiod has spoken of a Race of Silver, a race not like unto the Golden either in body or mind. They could not refrain from baneful outrage upon one another, and they would not serve the immortals or make sacrifice upon the holy altars of the blessed Gods after the lawful manner of men in all their dwelling-places (Greek H. Thought, p. 142).

2. The Race of Bronze has been thus described by Hesiod. 'Their delight was in the grievous deeds of Ares and the trespasses of pride. No bread ever passed their lips, but their hearts in their breasts were strong as adamant, and none might approach them. Great was their strength and unconquerably were the arms which grew from their shoulders upon their stalwart frames. Of bronze were their arms, of bronze their houses, and with bronze they tilled the land.' (G. H. Thought, p. 142.)

5. THE IRON OR KALI AGE

The fourth and the last period extending to 432,000 years, is known as the Kali Yuga. In this age the development of the human race reaches its climax, and yet the seeds of decadence are sown broadcast during the same period.[1]

Moral deterioration and material progress are, according to the Hindu conception of the four ages, co-related to each other in inverse ratio. Moreover there is the ever-present paradox that unfoldment in material civilization is declared to be identical with "sin." In the first stage virtue alone exists, and the synchronic presence of sin is not recognised. In the second age, virtue and sin are found in the proportion of three to one, but in the third or Dwapara period, virtue and vice are represented as equally balanced, then three-fourths of virtue disappears and sin replaces it in the same proportion, therefore the fourth age is the Black or the Terrible one on account of the suppression of virtue and the sovereignty of sin. It is for this reason that the first age is called the golden and the last age the iron one.

Call them by whatever name you choose, this much is certain that the Hindu philosophers have propounded the concomitant presence of both virtue and vice, and the progressive evolution or development of material arts, sciences, comforts, culture, civilization. It is doubtful whether we can call the primitive virtues as

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1. The life of the Race of Iron is thus depicted by Hesiod: Never by day shall they rest from travail and sorrow, and never by night from the hand of the spoiler; and cruel are the cares which the Gods shall give them (Ibid, p. 143).

moral, for in the light of to-day's philosophy we should rather name them as unmoral—neither moral nor immoral--yet it can not be denied that the rocky principle of progressive unfoldment of what is now named culture, has been clearly worked out in Hindu Shastras.

6. THE PRIMITIVE MAN

These, in brief, are the main points; the details undoubtedly and naturally differ in several works. The Vishnu, Adi, Markandeya and Vayu Puranas deal with this subject-each succeeding Purana deals more fully than the preceding one. The views of Markandeya can be taken as typical of all others, hence we reproduce below a summary from this Purana.

"This creation of the human race is similar to that which Prajapati formerly produced. Sprung of this lineage they worshipped this world, and then *paid homage to rivers, lakes, seas and mountains; they lived wholly without habitations;* their actions were wholly unswayed by love; their minds were always joyful, there was neither heat nor cold in excess: water was exquisite; there was an easy attainment of many a delight Devoid of desire and hatred they lived amicably with each other; all were equal in form and length of life, without inferiority or superiority. Everywhere the earth was entirely blessed with good fortune.

"At the beginning of the Treta age the people got their subsistence from those Kalpa trees. Afterwards in course of time passion sprang up suddenly among hem.

Then those trees were called houses by them.

Afterwards in course of time those people grew

covetous; their minds being filled with selfishness they fenced the trees round and those trees perished by reason of wrong conduct on their part.

Then for the sake of combination and resistance they made towns for the first time; they resorted to fortresses in inaccessible deserts and wastes, in mountains and caves; also they industriously *constructed with their own fingers* artificial forts on trees, on mountains and in water."

It is obvious from the preceding description that primitive man had no instruments of any kind, therefore houses or rather places of refuge had to be constructed with their fingers. The whole account seems to be a faint reminiscence of some far distant past. The author seems to confound their arboreal and mountainous residences with forts. In one way every residence was a fort, because in that universal strife of man against man, every group had to defend itself as best it could against its aggressive intruders.

The Purana then clearly points out that houses were built in imitation of trees. "As trees were their first kind of houses, with a remembrance of all that, those people built their houses. As some branches of a tree go in one direction, and others go in another direction and some rise upwards and some bend downwards, even so they fashioned the branches in their houses. *These branches became rooms of the houses built by these people.*

These people ruined the Kalpa trees by their strife. Then suffering from thirst and hunger, they began to ponder on their means of livelihood.

7. APPEARANCE OF TREES

In course of time plants of fourteen kinds came into existence. Trees and shrubs bearing flowers and fruits in their proper seasons were produced. This manifestation of vegetation took place first in the Treta Age. It was on such trees that the people lived in that period.

Then lapsing into strange passion and covetousness, those people took possession of rivers and fields, mountains, trees and shrubs *in their own right, even according to might.*

Through their sin and strife those plants perished before their very eyes, and the people fell into still further confusion. Suffering from hunger on account of the destruction of the means of living, they resorted to Brahma for giving them once more some edible things to sustain their life. Through His beneficence, seventeen kinds of cereals came into existence. *They were to ripen after ploughing.*

The adorable Lord also devised means of livelihood for the advancement of the people as well as for the perfection of the hands which can be attained by doing manual work.

Following these means, the Lord established bounds for them according to justice and their qualifications, also the laws of the four castes of Brahmins, Kshatriyas, Vaishyas and Shudras, and the four divisions of life, as those of a student, householder, anchorite, and an ascetic. In other words, the seeds of an organized political and social life were laid when man had passed through ages of anarchy, chaos, confusion, strife and suffering

It will be wearisome to repeat the same accounts from other works, because there is no difference in the main principles. These are not the stray thoughts of a philosopher or an historian, *their existence in so many Puranas decidedly proves their general acceptance among the people of those ancient times.* One more passage will adequately represent the mind of the Hindu philosophers.

8. THE GENESIS OF THE STATE

The Adi Brahma Purana thus speculates upon the rise of the state and the evolution of human society. We are told that at some early time there were no villages and towns on account of the uneven character of the land Agriculture, cattle-rearing, commerce, manufactures, truth, untruth, avarice, selfishness and jealousy-all these had their beginning in the time of Prithu. This king settled inhabitants in districts which had been cleared and made even We have heard that the people in those days, in the Prithuvian period, won their food, even roots and fruits after a good deal of trouble. Hence Prithu introduced agriculture and raised crops. It is through the continuance of the art introduced by the King, we are told, that the people up to this day have recourse to agriculture for their food. This earth was called Prithvi-"the evenly spread"-after the name of that king It was he, again, who ornamented it with villages and towns.

In those ancient days the institutions of family and marriage did not exist. Bhisma goes so far as to say that there was no institution of marriage before the Kali age. Sexual intercourse without family life began

in the Dwapara Age. 'In the Kali Age men began to marry and live in pairs.'[1]

Now there connot be the least doubt that the Hindu philosophers were almost unanimous in recognizing and propounding the great principle of the gradual evolution of mankind to a better, happier and more cultured social and economic life.

9. EVIDENCE OF TRAVELLERS

These ideas were prominent even in the fourth century before Christ when Megasthenes recorded them in his description of India. Again, H. Tsang after the lapse of some 850 years confirmed the same account in his books. These two testimonies of foreign historians are highly significant, and hence we reproduce them below *ad verbatum*.

" The (Indian) *legends* further inform us that in primitive times the inhabitants subsisted on such fruits as the earth yielded spontaneously and were *clothed with the skins of the beasts* found in the country, as was the case with the Greeks; in like manner as with them, *the arts and other appliances which improve human life, were gradually invented*.

When the people of the country were still living in villages, Dionysius made his appearance. (1) He taught them the way to make vine, as well as other arts conducive to human well-being. (2) He was, besides, the founder of large cities, which he formed by removing the villages to convenient sites, while (3) he also showed the people how to worship the deity and introduced (4) laws and (5) courts of justice[2].

1. Shanti P. 207, 88-40.
2. McCrindle-Ancient India, pp. 35-38.

The famous traveller H. Tsang has thus summarized the views of the Hindus on the evolution of the state and society:—

"In old times at the beginning of Kalpa (Creation) when things first began, they (people) inhabited dens and caves of the desert. There was no knowledge of dwelling houses. After this a Devi (*divine woman*) descending in consequence of her previous conduct, was located amongst them. She brought forth four sons, who divided between them the Government of Jambudvipa (or Asia.) Each took possession of a district, founded a capital, built towns and marked out the limits of the frontiers."[1]

In the account of the colonization of Ceylon by the Indo-Aryans, H. Tsang expresses himself thus on this subject:—

" His sons and grandsons becoming numerous, they proceeded *to elect a king and ministers, and to divide the people into classes.* They then built a city and erected towns and seized on the territory by force"[2].

10. SIMILARITY BETWEEN HINDU AND GREEK THOUGHT

It is really strange to see that Plato too, like the Hindu philosophers, though recognizing that primitive men were ruder, more ignorant of the arts generally and inferior to those who lived before the deluge, pronounces them to be better men, men simpler, more manly, more temperate and altogether more just. He argues their superiority in these words:— "And the community which has neither poverty nor riches will always have the noblest principles; in it there is no insolence or injustice, nor, again, are there any contentions, or enjoyings. And therefore they were good." [3]

1. Vol. II, p. 92. 2. Vol. II, p. 240. 3. Laws, III.

Plato in his Politicus has adhered to the doctrine of degeneration and the Hindu theory of cyclic evolution. ' When God was the shepherd, there was no state and no ownership of women and children. All human beings came into life again out of the Earth, without any recollection of their previous experience. All the historical conditions of life were absent, while on the other hand, they enjoyed fruits in abundance from trees and other plants, which were not the product of cultivation, but were raised spontaneously by the Earth herself. For the most part they camped in the open without clothes or bedding, the climate having been tempered so as to do them no injury, and they found soft couches in the grass which was produced by the Earth in abundance. So long as the universe enjoyed the co-operation of the Helmsman in breeding its living creatures, it implanted in them only trifling defects with a predominance of good; and when it parts company with him, it always performs its functions best during the phase least far removed from its release. As time goes on, however, and forgetfulness invades it, the malady of its original disharmony begins to gain the upper hand, until in the final phase it breaks out openly. Then the Universe receives into its composition only a trifling element of good and so predominant an admixture of the opposite that it becomes in danger of involving itself and all things therein in a common destruction. At this point, God, who had originally set it in order, perceives the straits into which the Universe has fallen and anxious lest it may break up under the tempestuous blows of confusion and may founder in the fathomless gulf where all things are incommensurable— he again assumes control of its rudder, reverses the tendencies towards

sickness and dissolution which had asserted themselves in the previous period when the Universe had been left to itself, sets it in order, corrects that which was amiss, and endows the Universe with immortality and eternal youth........ When Mankind had been deprived of the care of the Spirit who had been our shepherd, the majority of wild beasts that were fierce by nature turned savage, while Man himself became weak and defenceless. In consequence he was harried by the wild beasts, and in this first phase he was destitute of all equipment and resource, since his spontaneous food-supply had failed before he had been taught, by the stress of necessity, to provide for himself. For all these reasons, Man found himself in the direst straits.'[1]

We read a great deal about the four ages of the world in the ancient books of the Hindus, Egyptians, Jews, Persians, Greeks and Romans. This universal belief ought to be taken as a reminiscence of what actually happened in the past. Everywhere the order of these ages, whether known by Gold, Silver, Copper and Iron or any other names, is based on the idea of progressive degradation in virtue and proportional progress in culture, as the ponderous wheel of time has rolled on and on. The accounts of primitive humanity handed down to us in Hindu books written more than two thousand years ago, conform to the researches of modern anthropologists in main outlines. It will have been seen that the Hindus are not indebted to the Greek mind for the origination and development of the theory of Social Evolution. Lucretius, the bold propounder of this hypothesis, was born in 99 B. C. which

1. Greek Historical Thought, pp. 147, 148, 149.

is several centuries later than the period when the Hindus had developed the doctrine. It is not Lucretius who should be called the precursor of Darwin and Spencer, but the credit belongs to the Hindu philosophers. It has been shown that according to these thinkers the arts of life have slowly developed, in fact so gradually that more than three million years were spent by primitive man in roaming about the woods and living at the mercy of callous nature, before he could devise some crude instruments for clearing and cultivating the ground. Since then man has been developing his various faculties, improving his opportunities of subduing nature and unfolding those powers which ensure comfort, culture and civilization.

11. THE CONCLUSION

The progress in arts and sciences was slow in the Dwapara Age, but the speed of progress was accelerated in the Kali Age. Man's energy, intellect and inventive spirit remained locked up for about four million years. These were let loose in the Kali age and since then there was a progressive acceleration in the rate of human progress with the passing of that age. On this hypothesis, we always build and improve upon the achievements of our ancestors. As these achievements form the rocky foundation of our structure, we can take just pride in the civilization of our forefathers. But it must be evident that the last word in any science and art could not be said by them. The accumulated knowledge of all the past generations and the wonderful means possessed by us for the ramification and infiltration of every old and new fact throughout the length and breadth of the planet, the liberation of the intellectual and physical energies of every man and woman from all kinds of political,

social, and ecclesiastical bondage, all these have placed most powerful engines of progress in our hands. To me it appears that the Hindu society is suffering more and more from intellectual atrophy which, in a short time, will become paralysis of the brain. The ancient sages advised men to search after truth and to boldly proclaim the same, and what is more, to make logic, their guiding star.

We should remember the fact that the Rishis spoke of the truth as I and you see it, not as this or that saint realized it or as Gautama or Kanada saw it. No doubt, strong light has, in ancient India, been thrown upon many problems of life and death, and our ancestors made wonderful discoveries in many fields of human activity. Still it does not follow that we cannot improve upon their achievements in the regions of science, art, religion, thought and philosophy. We can and must add to the intellectual wealth of our forefathers. If we are satisfied to live upon the inherited patrimony, fame and prestige of our hoary ancestors, we shall soon be bankrupts. Our intellectual bankruptcy like the age-long intellectual sterility of the Hindu society, will mean senility, decay, death. We must throw off the spirit of intellectual passivity, inactivity, bondage. We must welcome all kinds of bonafide opinions on the Vedas, Brahmanas, and Shastras. Then and only then we will strike at the root of hypocrisy or intellectual slavery, and draw men of intellect for research work. The signs of atrophy and inanition will then give way to those of full-grown life and vigour, and in the time to come the Hindus may again be at the climax of evolution.

CHAPTER X

HINDU THEORIES ON THE EVOLUTION OF THE STATE

Almost all the theories which Western philosophers have propounded to explain the genesis of the state have been forestalled by their Hindu predecessors. It will be too much to expect detailed discussions on each one of these theories, but some important conclusions have been repeated in several ancient works. Attempts have been made to discover the necessary cause which lies at the basis of the state and also to investigate the events, conditions and circumstances which gave rise to states. Philosophical speculation has been mingled with historical and inductive knowledge to explain the genesis of political society.

1. HINDU BOOKS NOT BARREN IN POLITICAL THOUGHT

Indian literature was not much studied in the days of Bluntschli and therefore it was possible for him to make a remark like this:

Even the ancient sacred books of the Jews, which inform us of the first rise of the Jewish state, pre-suppose the Egyptian state, without telling us anything of its origin. Perhaps the Indian state served as a model for Egyptian; but *the sacred writings of the Indians give us no light on the subject.*[1]

It will be the object of this chapter to point out to the mass of light thrown by Hindu literature on the rise and genesis of the state.

We are here asked to solve two problems:

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1. The Theory of the State, p. 259.

(a) What was the original or pre-statal condition of primitive humanity ?

(1) Were the first generations of men living in a state of innocence, bliss and contentment?

or (2) Were they living in a Hobbesian state of ceaseless warfare and misery?

(b) Did man emerge from this non-statal or non-political condition to the political condition through

(3) the beneficent interference of God's will,
(4) force,
(5) inherent necessity or natural impulse, or
(6) social contract ?

The first question has led to the theory of golden age.

The second has given rise to the belief that the state of nature was a state of war.

The third has resulted in the acceptance of the theory of the divine origin of the state.

The fourth preaches the dogma that the state is the result of force.

The fifth develops the doctrine of the state being a natural institution.

The sixth leads to the conclusion that the state is a free work of contract.

Each of these theories has been anticipated by Hindu philosophers. We will take up their study in the order given above.

2. THE STATE AS A NECESSARY EVIL

The most popular theory is that of the golden age. Well did Bluntschli say that the popular [1] imagination has dreamed of the golden age of Paradise, in which

1. The Theory of the State, pp. 283-4.

there were as yet no evils and no injustice, while all enjoyed themselves in the unlimited freedom and happiness of their peaceful existence. Everyone was like another. Then too there was neither ruler nor subject, nor magistrate nor judge, nor army, nor taxes. In comparison with such an ideal the later political condition of man must appear perversion and decline; thus the state was thought of as a necessary evil, at least as an institution of compulsion and constraint to avoid greater evils.

There is an extraordinary resemblance in these thoughts and the expressions used by Bhishma in his discourse with King Yudhishthira on the beginnings of sovereignty in the golden age. We are told that[1] at first there was no sovereignty, no king, no punishment, and no punisher. All men used to protect one another piously. As they thus lived, righteously protecting one another, they found the task in time to be painful. Error then possessed their hearts. Having become subject to error, their virtue began to wane. They became covetous, lustful and wrathful.

Unrestrained indulgence set in. Men began to utter what they chose. All distinctions between clean and unclean food and between vice and virtue disappeared. During this confusion the Vedas and after them righteousness disappeared. Thereupon the gods supplicated Brahman to protect the world of men. Brahman compiled the science of polity and required the people to organize themselves according to the dictates of that science. * *

Nárada has similarly speculated upon the origin of law and justice. When mortals were bent on doing

1. Shanti Parva, chap. 59. 13-20.

their duty alone and were habitually veracious, says he, there existed neither law-suits, nor hatred, nor selfishness. "The practice of duty having died out among mankind, law-suits have been introduced and the king has been appointed to decide law-suits, because he has authority to punish."[1]

He is supported by Brihaspati who remarks that in former ages men were strictly virtuous and devoid of mischievous propensities. Now that avarice and malice have taken possession of them, judicial proceedings have been established.[2]

Plato too can be said to have subscribed to this view of the existence of the golden cycle. 'In the primeval world, and a long while before the cities came into being whose settlements we have described, there is said to have been in the time of Cronos a blessed rule and life, of which the best ordered of existing states is a copy.'[3]

Bhishma's discourse leads us to the conclusion that the state is a divinely organized institution. It is not the result of contract or social compact. The state, law, justice are not necessary for virtuous men. Neither kings nor judges are needed for righteous people. The Krita age of the world is supposed by our philosophers to possess virtuous men and women alone, and hence they had no necessity for the state. It is evident now that the theory of the golden age leads to the belief that the government is a necessary evil.

3. THE THEORY OF ANARCHY

Hobbes and Spinoza did not believe in the existence of the golden age on this earth. They postulated a

1. Narada, 1.2. 2. Brihaspati, I. 1.

3. Laws, 713; Statesman, 291.

state of war as the normal condition of the most primitive man. The natural state of man was 'a condition of war of every one against every one.' Men like beasts were ceaselessly warring with each other. Rousseau's description of the anarchical primeval state is inimitable, but it is equalled if not surpassed, by the statements in the Ramayana and Mahabharata. It has been suggested by many scholars that the expressions of Hobbes and Spinoza are to be understood rather as a logical statement of what would be the condition of man apart from civil society, than as distinctly implying a historical society. In this sense the Hindu account of the non-political condition of mankind is full of interesting details.

4. BRIHASPATI ON ANARCHY

Anarchy, says Brihaspati, is the worst of all conditions. In kingdoms torn by anarchy citizens devour one another. Sinful men enjoy the wealth of others by robbing. The wealth of one is taken by two, that of those two is taken away by many acting together. He, who is not a slave,is made a slave. Women are forcibly carried away. Every thing is destroyed untimely, every part of the country is laid waste by robbers, everybody falls into a dreadful hell.

In the absence of king's protection men would disobey or even injure their very parents, even their very preceptors, guests and elders.

If the king did not protect, all persons possessing wealth would have to meet with death, imprisonment and persecution, while the very idea of property would be lost.

If the king did not protect, all restrictions about

marriage would disappear; all matters of agriculture and trade would fall into confusion; morality and the three Vedas would disappear.

In the absence of king's protection, all kinds of injustice would commence; intermixture of castes would occur; and famine would devastate the kingdom.

In the absence of king's protection, all beings, filled with fear and anxiety, and becoming senseless and uttering cries of misery, would be ruined in no time.

As, O king, all creatures cannot see one another and sink in utter darkness if the sun and the moon do not rise, as fishes in shallow water and birds in a safe place dart and move about as they please for a time and repeatedly attack and grind one another with force and then are destroyed, so men sink in utter darkness and meet with destruction if they have no king to protect them like a herd of cattle without the herdsman to take care of them.

If the king did not observe the duty of protection, the strong would by force misappropriate the property of the weak, and if the latter refuse to surrender to them easily, their very lives would be taken.

Nobody then, would be able to say about any of his belongings, this is mine. Wives, sons, food, and other kinds of property would cease to exist.

Ruin would befall everything, if the king did not observe the duty of protection. Wicked men would by force appropriate the cars, dresses, ornaments, precious stones and other kinds of property belonging to others if the king did not protect.[1]

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1. Cf. Shanti Parva, chapters 67, 68, 90, 91. Manu, vii. 20-25; Ramayana, Ayodhya K., chap. 67.

This theory implies that the state is necessarily a beneficial institution. There can be no society, no peace, no order, no progress, nor even existence without government. The benefits of the existence of the state are inestimable. Chaos and anarchy are on one side; life, property, morality, order, and progress are ensured by the other.

We need not suppose an inherent contradiction in the preceding two doctrines. They were harmonized with one another by Hindu philosophers when they averred that in the beginning humanity was living in an idyllic state of earthly paradise; time came when the people fell from that pure, noble and high life through passion, ambition, delusion, rapacity; this fallen humanity was subjected to the beastly war of every one against everyone and then emerged king, law, and government. Such an hypothesis of the origin of body politic and the justification of government is also found in Aristotle:

"He who by nature and not by mere accident is without a state, is either above *humanity* or below it; he is a tribeless, lawless. hearthless one,' whom Homer denounces as the outcast who is a man of war." [2]

5. STATE V. ANARCHY

Many Hindu books refer to the popular maxim that the world is dominated by the Matsya Nyaya—the logic of the fish. It is merely another name for the Darwinian struggle for existence, for the Spencerian formula of the Survival of the Fittest, Marxian axiom of class struggle, or the race-struggle of Gobineau and Gumplowicz. The Hindu formula of the logic of the fish is all comprehensive and it implies universal struggle

2. Aristotle's Politics. 1. 2. 9

going on in every place and every time. The Indian philosophers were wide awake. They witnessed this life and death struggle among the fishes, birds, animals and men too. The latter are as much inherently subject to the same law of destruction as the lower animals, but they can be saved from its ruthless operation by the interference of the state. The rule of law, the fear of punishments puts a stop to this struggle. Thus while extreme individualistic writers posited this dogma of the survival of the fittest as a beneficent and moral law for the betterment of the world, the Hindu philosophers like the modern socialists favoured the interference of the state for checking the destructive operations of the law. The antiquity, popularity and significance of this important contribution to political science will be evident from the following passages:

The stronger will eat up the weaker just as men eat fish on the spit. The stronger will eat up the weaker as the strong fish make a prey of the weak fish in the water.[1]

We have heard that men, in days of yore, in consequence of anarchy, were ruined, devouring one another like stronger fishes devouring the weaker ones in the water. The strong will oppress the weak after the manner of the fish in the water.[2]

In kingless lands no law is known
And none may call his wealth his own;
Each preys on each from hour to hour,
As fish the weaker fish devour.[3]

1. Manu vii. 20; Yuktikalpataru, p. 15.
2. Shanti Parva, 67. 16–17.
3. Griffith's Ramayana, II, lxvii.

In this world where beings are related to one another as food and consumer, when proper chastisements are withheld, the exertions of a king to keep his subjects under control, become as futile as those of an angler trying to catch fish without the help of a rod.[1]

There is no race in the world without a king. I do believe that the gods introduced the magical name among men in their alarm, fearing that otherwise the strong would devour the weak, as great fishes eat the little ones.[2]

According to Raghunathavarman, the logic of the fish is an accompaniment of the logic of the monsters. The latter implies two equal forces neutralising each other or two men of equal power fighting and destroying each other like the traditional monsters Sunda and Upasunda. The logic of the fish is used only in those cases when two facts or men are of unequal strength and the one can overpower the other. It is frequently mentioned in the Purânas and books on history. An illustration is given in the story of Prahlada described in the Yogavasishtha. " By this time there came to be in the nether region an extremely kingless or anarchic state characterised by the deplorable logic of the fish. As the strong fishes make an end of the weak ones, so in that region where anarchy ruled supreme the strong men destroyed the weak ones." [3]

When the law of punishment is kept in abeyance, it gives rise to such disorder as is implied in the proverb

1. Kamandaki. ii. 40.
2. G. A. Jacob's Laukikanyayanjâli, ii, p. 57.
3. Ibid., p. 57.

of fishes; for in the absence of a magistrate the strong will swallow the weak; but under his protection the weak resist the strong.[1]

In the absence of punishment, strong people will devour the children, the old, the sick persons, ascetics, priests, women and widows just in the manner of the logic of the fish.[2]

The Bhágvata Purana preaches that the handless creatures are the means of sustenance to the beings having hands (human beings), the footless (all vegetables) to the quadrupeds, and the smaller to the greater ones; in this way all weaker beings are the means of sustaining life to other beings of greater power.[3]

The Vishnudharmottara thus depicts the evil consequences of the universal strife in the non-political state. " If law were not to defend, all will be drowned in blinding darkness. Hence law controls those who ought to be controlled and punishes men of violent tempers. If the law should fail to protect the people, they following the principle of the logic of the fish, would eat up the children, the old, the afflicted, the ascetics, the priests, the maimed and the women. The gods, demons, divine serpents, men, animals, birds, all shall transcend their own limits in the absence of the rule of laws.[4]

6. THE STATE AS A DIVINE INSTITUTION

The state is a prototype of the God's kingdom on earth. All conquerors and despots have pinned their faith to this theory. Alexander declared himself to be

1. Arthashastra, Eng. Tr., p. 10. 2. Matsya Purana, ccxxv. 9.
3. Bhagavata, 1. 13. 46. 4. Vishnudharmottara, I. 71. 9-18.

the son of Zeus. Akbar by starting the Din-i-ilahi and accepting the prostrations of his followers raised himself to the status of a divine being. The Emperor of Vijayanagara had the title of Paramesvara–God himself. The Austrian king too appropriated very high sounding titles. The formal titles of the Italian king are no less funny.

The English king is the Lord's Anointed. The Kaiser had the temerity in this twentieth century to openly declare to his troops that he was the God's vicegerent on earth: "Remember that the German people are the chosen of God. On me, as German Emperor, the spirit of God has descended. I am his weapon, his sword and his vicegerent. Woe to the disobedient. Death to cowards and unbelievers."

These are the remnants of the theory of the divine personalities of sovereigns. The age-long institution of monarchy has taken deep roots in the human mind and it is impossible to root out the sentiments and beliefs in 'the divinity that doth hedge a king.'

While there are many passages in the Indian political literature which propound the belief in the divine direction of human affairs, there are other statements that distinctly lay down that kings are not only representatives or vicegerents of God on earth, but incarnations of God himself. The second is only the necessary and logical consequence of the first. In India as in Europe the same process was worked out.

In the middle ages the chiefs of Christendom were looked upon as divine personages being representatives of God himself, but later on they grew to be the incarnations of God. All authority emanated from the

divine source of the person of a king. Louis XIV gave expression to this belief in the words: 'We Princes are the living images of Him, who is all holy and all powerful.' His minister Bossent explained and fortified the position of his sovereign by maintaining that kings are the ministers of God, and his vicegerents on earth. The Throne of a King is not the throne of a man, but the throne of God Himself. The person of a King is sacred and it is sacrilege to harm them. They are gods and partake in some fashion of the divine independence.'

7. DIVINITY OF KINGS

In the Hindu political system too the divinity of rulers has been emphatically taught. The primeval law-giver Manu lays down that a king has been created by God through the eternal essences of Indra, Wind, Yama, Sun, Fire, Varuna, Moon, Kubera. As a sovereign has been made from the essences of the great gods like Indra, etc., he overpowers all living beings through his energy. Like the sun itself, he burns the eyes and minds of men. There is none capable on the earth to see his face. He becomes Fire, Wind, Sun, Moon, Yama, Kubera, Varuna, and the great Indra through his influence.

As if these assertions were not sufficient to justify the absolutism of sovereigns, Manu teaches his readers the significant lesson that they should not look upon a king as a mere man. Even when he is a child, he should not be ignored. He (in the form of a man) sits upon the throne as a great god.[1] These ordinances inculcate the sacred duty of passive obedience to the king. The Nítiprakáshiká of Vaishampáyana

1. Manu, chap. vii, 6-8.

faithfully reproduces the above doctrine in the very words of Manu (viii. 1-7).

The high water mark of this doctrine is reached in the teachings of Bhishma[1] who states on the authority of the sacred books that in crowning a king it is Indra that is crowned, hence a person who is desirous of prosperity should worship the king as he would worship Indra himself. "What other cause can there be for which all men obey one person, save the *divinity of the monarch*. A king is really a portion of Vishnu on earth. No one should obey a king by taking him for a man, for he is in sooth a great god in human form."

This doctine of the divine personality of rulers led to the dangerous doctrine of the divine rights, or to absolute and irresponsible sovereignty. In India too we find an anticipation of the principle that the king can do no wrong.

The full significance of this monstrous maxim can be realized from the commentaries of Blackstone. He observes that "the king is not only incapable of doing wrong, but even of thinking wrong; he can never mean to do an improper thing; in him is no folly or weakness."

Such an incredible theory that the king, though an ordinary man, is not liable to err; that he is ever right and just; that his acts though oppressive, unrighteous or brutal, are not wrongful; that he is not amenable to any earthly court of law; that he is absolutely immune from punishment, has led to the dismal dictum that "the erring prince must be left to the rebukes of his own conscience, and to his personal accountability to God alone."

1. Shanti P.. lxvii. 4: lix. 131, 134; lxviii. 40.

8. KING'S RESPONSIBILITY

The Indian political philosophy has not gone so far as to confer immunities upon the king. He cannot indeed be called as a witness in a court of law, but many others have got the same privilege.[1] He can be punished. The sentence is in some cases more severe than on ordinary offenders. Kings are not law-makers. They are not above law. Law is above kings.[2] Then law is to be interpreted by Bráhmana judges. Laws are to be administered with the help of legal councillors. Kings are inferior in social status to a Rishi, Brahmavádin, Brahmachárin, etc.[3]

A king can be even deposed for the wrongs that are done by him.

The subjects have the right to revolt against him[4] and to invite some other king to rule over them as was done in the bloodless English Revolution of 1688.

The king is actually beaten during the ceremonies of the coronation by the representatives of the four classes.[5]

The king is responsible both to the people before whom he takes oaths to faithfully execute the laws of the land,[6] and to be responsible to God. He commits a crime as well as a sin in violating a certain law.

The king has been called a slave of the people, whose wages are the taxes obtained from his subjects for their protection.[7]

For these and other reasons the Hindu political

1. Manu, viii. 65-68; Narada, i. 147-171; 177-197; Br. Up., vii. 13-14.
2. Manu, vii, 14-27.
3. Arth, i. 3; Manu, vii. 41; Shukra, i. 68-69, 142-5.
4. Mahavamsa. pp. 19, 53, 261.
5. Shatapatha, v. 4. 4. 7
6. Shanti P., lix. 102-107.
7. Shukra, i. 375.

science does not recognize an irresponsible, unerring, unpunishable and unjust king. *It takes him to be endowed with divine functions rather than with divine rights.*

The verses of Manu have been perverted in interpretation by the interpolatory verses regarding the divinity of kings. Such passages are spurious, as they are totally against the spirit of the laws of Manu.

Even a king of divine origin like Vena was not merely deposed but murdered on account of his tyranny. He was succeeded by Prithu who took solemn oaths not to rule capriciously, but righteously, impartially, and according to the dictates of ethics and politics. The Hindu Shástras idolize constitutional kings alone. Capricious, despotic, tyrannical rulers are condemned to hell in the life to come and the loss of their kingdoms here.

9. DIVINE DUTIES AND NOT RIGHTS.

The statement regarding the creation of kings from the essences of the gods is to be found in several works. The real significance reverses the meaning ordinarily given to those passages. There is no straining of the sense, and no attempt at reading thoughts not found in the books. The sense is so clear that anyone who runs will be convinced of the pregnant ideas embedded in the verses.

(i) Let us first take the Shukraniti. It is emphatically stated therein that the king is made out of the permanent elements of Indra, Váyu, Yama, Sun, Fire, Varuna, Moon, and Kubera, and is the lord of both the immovable and movable worlds. Shukra has himself so explained this passage that he leaves no doubt as to its exact significance. The king has to perform

certain duties which are assigned to the gods in the kingdom of nature. ***He resembles them in the performance of those functions.***

Says Shukra:

Just as Indra is the receiver of his share and clever in protecting the people, so should also be the king.

As the wind is the diffuser of scents, so the king is the guide in good and evil actions. As the sun is the dispeller of darkness, so is the king the impeller of religion and destroyer of irreligion.

As Yama is the god who punishes human beings after death, so also the monarch is the punisher of offences in this world.

Like Fire, the prince is the purifier and the enjoyer of all gifts.

As Varuna sustains everything by supplying moisture, so also the king maintains everybody by his wealth.

As the moon pleases human beings by its rays, so also the king satisfies everybody by his virtues and activities.

Like the god of wealth the king should be vigilant in protecting treasure and possessions.

As the moon does not please if deprived of one of its parts so the king does not flourish unless he has all the parts described above.

The preceding passages have emphasized upon the eight important duties of rulers. These can be summed up as under:—

(1) Levying taxes and fully protecting the subjects in return.

(2) Establishing virtue and eradicating vice.

(3) Spread of education and orthodoxy and the rooting out of heterodoxy and ignorance.

(4) Administration of justice.

(5) Realization of revenues.

(6) Generous expenditure of what has been collected as revenue for the good of the public.

(7) Procuring means for the amusements of the people.

(8) Security and increase of national wealth.

It is the doctrine of the divine duties of kings and not of the divine rights of sovereigns that has been expounded by political science in India.

(i) Shukra is not satisfied with showing close resemblance between the important functions of earthly kings and the powers of nature. He seeks his analogies from the world in which we live, move and have our being. According to him, the sovereign *is always possessed of the attributes of seven persons*, e. g., father mother, preceptor, brother, friend, Vaisravana or Kubera, and Yama.[1]

As a *father* makes his offspring qualified, (i.e, by education), so the king can endow his subjects with good qualities.

The *mother* pardons offences and nourishes the children, (so also the king).

The *guru* is an adviser to the disciple and teaches him good lessons, (so also the king).

The *brother* takes out his own legal share from the ancestral property, (so also the king receives his own share of the people's wealth and produce).

The *friend* is the confidante and keeper (or protector) of one's self, wife, and secrets, (so also the king).

Kubera gives wealth, (so also the king), and *Yama* is the punisher (so also the king).

These attributes abide in the king who is prospering. These seven qualities should never be deserted by a king.[1]

These injunctions are supported by Manu and Bhishma in an unequivocal language thus :—

(iii) The lord of all creatures, viz., Manu, has declared that the king has seven attributes: he is mother, father, preceptor, protector, fire, Vaisravana, and Yama.

The king by treating his people mercifully is called their *father*. The subject, who plays him false, is born in his next life as an animal or a bird.

By doing good to them and by supporting the poor, the king becomes a *mother* to his people. By consuming the wicked he is regarded as *fire*, and by restraining the sinful he is called *Yama*.

By making presents of riches to his dear ones, the king is regarded as *Kubera*, the granter of wishes. By delivering instructions on morality and virtue, he becomes a *preceptor*, and by exercising the duty of protection he becomes the *protector*.

That king, who pleases the inhabitants of his cities and provinces by means of his virtues, is never divested of his kingdom for observing such a duty. That king, who knows how to honour his subjects, never suffers misery either in this world or in the next.[2]

(iv) In another place, Bhishma thus emphasizes the character of the king as mother.

1. Shukra, Eng. Tr. p. 13. 2. Shanti P., chap. 139, 102–107.

The king should always treat his subjects as a mother does the child of her womb. Hear, O king, why this is desirable. As the mother, even not caring for those objects which she likes best, seeks the well-being of her child alone, so, forsooth, should kings treat their subjects. A righteous king, O foremost one of Kuru's race, should always act in such a manner, as to sacrifice what he loves most for the sake of securing the well-being of his people.[1]

(v) In the 68th chapter of the Shánti Parva, it has been declared that the king puts on five different forms according to five different occasions. He becomes Fire, Sun, Death, Kubera and Yama.

(vi) Then Brihaspati similarly explains the import of these functions [2]

(vii) This idea of functions has been brought out in another discourse of saint Utathya. He advised the emperor Mandhatri to *imitate* Yama in his conduct by restraining all his subjects without making any distinctions. It is further pointed out that the king is said to *resemble* the thousand-eyed Indra, because whatever is regarded by the king as righteous is accepted as such by all. The saint summed up his teaching by saying that Indra, Yama, Varuna and all the great royal sages had acted upon principles expounded by him, therefore the emperor should follow the same conduct.[3]

(viii) In the Matsya Purana and Visnudharmottara[4] kings are advised to follow the functions of the various deities in their treatment of subjects. Rulers ought to

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1. Shanti P., ch. 57, 44-46. 2. Brhaspati, 41-47.
3. Shanti P., ch. 91, 44-57.
4. Matsya Purana, ch. 226; Visnudharmottara, I.71. 1-10.

imitate the sun, the moon, earth, wind, fire, Yama, Varuna and Indra. The similarities in the characters of the gods and kings are said to be as follows:

Gods	Kings
Sun	None should be able to gaze at the king by reason of his splendour.
Moon	People are mightily delighted to see him. Just as people feel joy on seeing the full moon, so the officials should be delighted at his sight.
Yama	Impartially punishes both friends and foes.
Varuna	Sinners are effectively caught in the nets of the king.
Agni	Kings ought to be valorous and burning to the wicked and cruel officers.
Earth	Kings should support and look after all their subjects.
Indra	Kings should shower gifts for four months.
Sun	Kings should collect taxes from their kingdoms for eight months as the sun sucks up moisture.
Wind	A king pervades all through his spies.

It must have been evident now that Hindu Shástras do not really teach the principles of the divinity of kings, their divine rights, or their immunity from punishment, but they emphasize the doctrines of divine duty and civic responsibility. Hence the dogma of the state as a divine institution was not taught in ancient India. However the time came, as is clear from the assertions of Manu and Chánakya, when the doctrines of the divinity of rulers and their divine rights were preached here.

10. THE POLITICAL NATURE OF MAN

Some philosophers have developed the precious idea

of Aristotle that man is a political animal. They believe that when society is once formed, government results as a necessary organization to preserve and to keep that society in order. But J. Bentham has rightly criticized the above statement of Blackstone in these words: "According to this, political society, in any sense of it, ought long to have been established all the world over. Whether this be the case, let any one judge from the instances of the Hottentots, of the Patagonians and of so many other barbarous tribes, of which we hear from travellers and navigators."[1]

There is much truth in this criticism. If man were a political animal by nature, he must have satisfied this inherent instinct, this natural and eternal impulse from the very beginning by uniting with others in political communnities. It is, however, not the case. From time immemorial people have been living in nomadic state. When men of extremely primitive civilization can live, propagate and wander together in groups without any political bond whatsoever, men of virtuous, unselfish, peaceful and altruistic temperaments must be more able to live together without any political unions.

One Vedic verse formulates the hypothesis that the state had its existence from the very beginning. It is said that : "Vratya was filled with passion, from him sprang the Rajanya. He came to the people, to kinsmen; food and nourishment followed him. He went to the people; assembly and council, army and treasure followed him."

It is evident that kingship was first established and then followed the various political institutions.

1. A Fragment on Government, p. 28.

11. THE STATE AS A NECESSARY GOOD

In the Purusha hymn which is found in all the four Vedas, society has been likened to the body of the Virat Purusha—the Supreme Person. The hymn comtemplates society as a manifestation of the divine will. It is consequently not a necessary evil, but a necessary good. It is a perfect organism. Man is the noblest work of the God's creation being made in the God's image itself, so the society is the noblest organization, made as it is in the image of the Virat Purusa. The various sections of the society are harmoniously set together in one undivided whole, breathing and pulsating as one organism only. The principles of unity, equality and fraternity are indirectly taught in this hymn.

Again, the conception of this Virát in the Atharva Veda [1] is full of significance. It is said that this world was at first Viráj, controlled by law. At its birth all were afraid at the thought that it would become or control this all. The Law first entered into the families and established, through the institution of marriage, regular worship of the family fires.

After the growth of the families, there came into existence villages, districts and countries. The Law was successively established in all of them. It was expressed through special political bodies called the *Sabha* or village-moot, *Samiti* or district council and *Amantrana* or congress of the whole country. The political evolution of a society through the territorial development of sovereignty has thus been outlined in a Vedic hymn. It is remarkable to find that the Veda should have

1. Atharva Veda, 8. 10.

recognized a time when the institution of families did not exist. After the family life was established, there came into existence higher and higher forms of government through the assemblies of the people. No idea has been given of the non-political or pre-statal condition. As Viráj is represented elsewhere as an issue of Brahmá, it appears that the state was a divinely contrived mechanism, or the immediate work of God. This hymn like many others works out the idea which the Augsburg Confession (A. D. 1530) teaches in its 16th Article that all authority, government, law and order in the world have been created and established by God himself.[1]

The beneficence of the institution of the state has been very naively brought out by Kamandaka. He emphatically asserts the existence of the law of the survival of the fittest and the struggle for existence by using the pithy and popular phrase of the logic of the fish. His arguments can be summarized thus:

In this world beings are related to one another as food and consumer. There is a perpetual struggle between the strong and the weak, the rich and the poor, the ruler and the ruled. The logic of the fish is working among all. Human beings are saved from the terrible consequences of this struggle by the existence of laws and the dread of punishment. There is a strong and ingrained propensity among men to give way to lower passions and animal instincts. They are kept back through the rule of law. In the words of Kámandaka "this stayless world is being forcibly drowned into the lake of sin by lust, cupidity and such like

1. Bluntschli. p. 287 n.

passions, but is supported by the king through the prompt infliction of punishment. Upright conduct is scarce in this slavish world of ours. But as it is, men attend to their prescribed duties only through the fear of punishment." In his opinion the state means the rule of law and the maintenance of customs, usages, conventions and traditions. " The king is the lawful promoter of all righteous usages followed by various classes, communities and occupations. In the absence of a ruler all righteousness is lost and this loss entails the destruction of the world itself."

The beneficence of the state is brought out in the Aitareya Brahmana wherein it is porpounded that even the gods cannot live without a ruler. As long as the deities were without a leader, they were defeated in all directions by the demons. Finding themselves in such a predicament, all of them agreed to elect a king. " They elected Soma their king. Headed by their king, they were victorious in all directions." This allegory teaches us that even the highly gifted, brave and virtuous persons cannot live long in a non-political state. As soon as internal or external struggle begins, the institution of the state becomes a paramount necessity. The story is written to emphasize the idea that the state is a very beneficent institution and a *sine qua non* of peace, order and progress.

In passing, a note should be taken of the other significant lesson that kings should be elected and that too as far as possible by the consent of all.

12. THE THEORY OF CONTRACT

It is most surprising that the Hindu philosophers should have postulated the historical existence of society

living in a state of warfare. This anarchy was put an end to by a *voluntary contract*. Bhishma has thus stated this theory to king Yudhishthira.[1]

'*We have heard*, that men, in days of yore, in consequence of anarchy, were ruined, devouring one another like stronger fishes devouring the weaker ones in the water. *We have heard* that a few amongst them, then, assembling together, made certain agreements saying that he who becomes harsh in speech, or violent in temper, he who seduces other people's wives or rob others' wealth should be renounced by us.

For inspiring confidence among all classes of the people, they made such an agreement and lived for sometime.

Assembling after some time, they proceeded in great misery to the Grandfather, saying-without a king, O divine lord, we are meeting with ruin. Appoint some one as our king.

All of us shall adore him and he shall protect us. Thus prayed for, the Grandfather asked Manu who, however, did not agree to the proposal.' Thereupon certain agreements were entered into between the two parties-the would-be-ruler and the people.

Having been fully assured by the people that they would obey his commands, pay him taxes, *help him in the work of administration*, Manu consented to become their king.

The following extract from Plato's Republic will be of great interest for comparison:

So that after men had done one another injustice, and likewise suffered it, and had experienced both, it

1. Shanti P., 17-32.

seemed proper to those who were not able to shun the one and choose the other to agree among themselves neither to do injustice nor to be injured and that hence laws began to be established, and their *compacts*; and that which was enjoyed by law they denominated lawful and just and that this is the origin and essence of justice.[1]

This contract theory related in detail by Bhíshma is very briefly summed up by Chánakya in his Arthashástra:[2]

" People suffering from anarchy as illustrated by the proverbial tendency of a largc fish swallowing a small one first *elected* Manu, the Vaivasvata, to be their king; and allotted one-sixth of the grains grown and one-tenth of merchandise as sovereign dues. Fed by this payment, kings took upon themselves the *responsibility* of maintaining the safety and security of their subjects (yogakshemavaha), and of being *answerable* for the sins of their subjects when the principle of levying just punishments and taxes has been violated. Hence, hermits, too, provide the king with one-sixth of the grains gleaned by them, thinking that 'it is a tax payable to him who protects us.'

It is evident now that the Hindus believed that in days of yore at some time or other there were no laws and no kings, that the kingless state was a state of chaos, that the people entered into compacts with one another to abide by certain laws, that the same could not be observed as there was no police or force behind those compacts, that they ultimately chose a king and entered into a contract with him.

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1. Plato's Republic, Book II, p. 39.

2. Eng. Trans., p. 26; cf. Manu, VII 3; Kam. II. 4(; Matsya P., 225. 9.

Three important differences in the statements of Bhishma and Chánakya should not be passed over.

Preliminary to a governmental pact with a king, the people emerged into a semi-political state by means of a social compact among themselves. This intermediate stage is not recogized by Chánakya who postulates a compact with a king as the primary cause of the transformation of a non-statal society to a civil condition.

Secondly, Bhíshma declared the first king, Manu, to have been created by Brahman. Thus he adheres to the divine origin of kingship. It was with this divinely created king that the people entered into a contract. Chánakya does not make mention of any interference on the part of Brahmá.

Thirdly, Bhíshma following Manu Smriti states that the people contracted to give Manu as taxes a fiftieth part of the increase in their animals and a tenth part of the net produce of their grains.

On the other hand, Chánakya allows one-sixth of the grains and one-tenth of the merchandise to be given as taxes to the king. The ancient liberal system of taxation had thus been replaced by higher taxes before the establishment of the Mauryan dynasty. In the Buddhist literature too the contract theory is frequently found. Sumedha, the first king of the present age of the world was born a-sexually at a time when the people of the planet were suffering from all the evils and miseries of anarchy. The people approached him with a request to protect them by being their king. He consented to be their ruler. Thereupon all the great men of the age assembled together and consecrated him as their ruler. As he was elected by all the great men, he was called

Mahásammata, i. e., "Elected by the Great." This Sumedha is also popularly known as Manu, or Mahásammata Manu, that is, "Manu elected by the Great."

Now let us examine the Hindu doctrine in the light of the Western expounders of the theory of the social contract. Bhishma has taken the standpoint of Rousseau. Natural liberty is substituted by civil liberty by a "form of association which may defend and protect with all the force of the community the person and property of each associate, and by which each, being united to all, yet only obeys himself and remains as free as before." This is a covenant of each with all. Kingship had not come into existence yet. There was no ruler, compact alone was the rule. It was the rule of law without the executive force. It was that ideal state which so many of the Nihilists desire to establish in future. But it failed in the past and will fail in the future.

We do not share the optimism of Hall when he says that "I can see the reign of *Anarchy*, when the law of mutual love suffices to secure justice to all, when society will be lawless because it is just." [1]

Bhíshma differs from Rousseau in expounding the next stage of statal evolution. The Hindu philosopher proceeds to propound the doctrine advocated by Locke that the state of social compact where every one was free being subject only to the restrictions of the voluntary agreement, proved ineffective in course of time. The people agreed to submit to a single authoriy. They entered into an agreement with Manu whom they had elected as their king. Thus the monarch became a party to the contract and consented to hold office by virtue

1. Hall's Human Evolution, p. 71.

of his compliance with the terms of that agreement. Should the monarch violate these, the contract is dissolved. He is a responsible ruler, answerable to the people for the defects of his administration, and liable to be deposed for breaking the compact. The people were then justified in entering into a new agreement with a new ruler. This kind of compact accompanied by solemn oaths formed a sure basis of limited monarchy in the Hindu society.

13. SUMMARY

It is now evident that the theories of social contract as propounded by Rousseau, Hobbes and Locke have all been happily amalgamated in the Hindu theory. Like Rousseau Indian philosophers propounded that the primitive state of nature was an era of idyllic felicity. In course of time, this blissful condition of simplicity, plenty, and happiness was followed by Hobbesian "Bellum omnia contra omnes." This state of universal warfare was ended by the voluntary agreement of the people on the lines of Rousseau's social contract. That non-ruler-state too was ineffective in putting down anarchy. Thereupon the people entered into a governmental pact of the type explained by Locke. Hence Bhishma is not only the first discoverer of the Social Contract Theory, but his genius developed a doctrine which has the advantage of unifying the three aspects of the theory separately emphasized by Rousseau, Hobbes and Locke.

To sum up then. It must have been evident now that the Hindus have given all possible solutions to the problems of statal evolution, centuries before the ancient Greek philosophers or the modern thinkers like Hooker,

Hobbes, Locke, Spinoza, Rousseau, or Herbert Spencer speculated upon those questions. They followed both the deductive and historical methods in their discussion on the origin of law and political societies.

It is true that these ideas are blended with allegory, mythology and ethics, and are not represented in a systematic manner. Many a time they lie buried under debris of Pauranic mythology. The want of a systematic treatise has led to the belief in their non-existence. Yet it will be now admitted that their abstruse discussions reflect an extraordinary credit upon the Hindu thinkers who differentiated the statal from the pre-statal condition and brilliantly anticipated all possible answers to the questions of the origin and justification of government, and of the subsequent stages of social evolution.

APPENDIX I

ROOTED ANIMALS

Whether the trees, plants, creepers, grasses, aye, the million and one things of the vegetable world should be counted amongst living or non-living beings, is not a question of academic interest only. Men of a material civilisation like ours may ignore the importance of this problem, but it is sure to occupy the supreme attention of the generations to come. When they behold the unity of life from microbe to man and from the smallest creeper to the biggest creature, they will realize the existence of souls in all beings and of all beings in that Omnipresent Soul, and hence they will not only desist from mercilessly taking life, but will invent methods for chemically producing means of sustaining human life. Hindu philosophers recognized the existence of life, consciousness and even of the nervous system in all the countless forms of the vegetable world.

They classified. all animate beings into stationary and locomotive ones. The vegetable world consists of the stationary, fixed or rooted animals. Sir J. C. Bose has preferred to name them Anchored Animals. It has been experimentally proved by this great Hindu scientist that plants show all the principal characteristics of life. His researches have supplied scientific demonstration of the truths treasured in the ancient Hindu books.

1. LIFE IN TREES

The testimony on the cognisance of life in plants is scattered throughout the Sanskrit literature, but a few typical possages will suffice here.

(1) In the Rigveda (X. 16. 3) God is represented to have deposited the germs of life in plants, herbs and in all existent beings.

There are other more explicit passages which affirm that every tree is endowed with a specific soul of its own to quicken it. Human souls are condemned to live in such forms. Muir,

Wilson, Macdonell all recognise that the following verses take for granted the doctrine of the transmigration of souls. (2) 'Thy spirit that went far away, went to the waters and the *plants.* (3) Go, if it be thy lot, unto the waters; go, make thine home in *plants* with all thy members' (Rig. x. 183,3). (4) Further comes the evidence of the Atharva veda. Plants have been declared breathing objects in I.6. 32. (5) Then in VIII. 7. 6 plants have been described as living objects.

(6) The Chhandogya Upanishad (VI. 3. I; VI. 11.1) supplies another incontrovertible testimony in support of this view. "Verily of all these living objects there are three sources, viz. oviparous, viviparous and sprouting objects. That Deity willed. Entering these three objects in the form of life (Jivatma), I shall be manifest in various names and forms."

(7) If we now turn to the Puranas, we meet with the same evidence of life in trees there. At the end of Chapter IV of the Garuda Purana it is said: Having eaten their undecaying fruits they are born again, By order of Yama they return to the earth and become unmoving and other creatures. Trees, bushes, plants, creepers, rocky plants and grasses are included in the unmoving type. They have life but are enveloped in great delusion. The numerous species of vegetables, insects, birds, animals and fishes, make up eighty-four lakhs of births. Many of these have to be gone through before one attains man-hood and even in coming up to the human kingdom souls are first born amongst low castes.

Speaking of the fruits of precarious actions in Chapter V, the Purana says: "One who goes with his teacher's wife, goes to the condition of grass, bushes and plants." The same thought has been expressed in Manu (XII-58; I,4I-5I) and Yajnavalkya (III. 208).

The same Purana (XVI-II) has given an ascending order of the evolution of a soul which cannot but be admired for boldness of assertion. 'The rooted animals, worms, goats, birds, animals, men, righteous persons, thirty-three deities and the liberated ones—according to this order does the evolution of an ascending soul proceed.

(8) The Sankhya Karika[1] furnishes confirmatory evidence:—"The divine kinds are of eight sorts, the grovelling creation is five-fold, mankind is single in its class. This, briefly, is the world of living beings. Domestic animals, wild animals, birds, reptiles and fishes, and vegetables are the five grovelling kinds of creatures."

Such is the extremely gradual evolution of the human soul. The acme of its perfection can be attained by undergoing changes through the slow but progressive cycle of evolutions. Even amongst the human race some persons and classes are more developed or evolved than the others. The author believes in a continuous and progressive evolution from the lowest to the highest. But this evolution can be arrested by the vicious actions of a human being. Sinners are hurled back into lower forms of life to suffer for the sins committed by them in human life. They are carried along the stream of life in one shape or another till they again attain to humanhood. It is a cycle- the deities or supermen fall to manhood and the sub-human creatures rise to be men-the crowns of creation.

2. CIRCULATION OF SAP

The circulation of sap in trees is explained by Bhrigu on the analogy of sucking or a suction-pump. It is said that as one can draw water through the hole of a lotus-stalk, trees also, with the help of the air, drink through their roots.[2]

But in the Kanada Sutras the movement of sap in trees is said to be caused by Adrishtam-Fate-induced activity of souls, whose pleasure or pain is produced by the growth of leaves, branches, fruits, flowers, etc.[3] Thus we are taught that the sap-movement is a function of life.

3. CONSCIOUSNESS IN TREES

The Sankhya system supplies us a most convincing proof of the life and consciousness in trees, though at the same time it is postulated that they have no discriminating mind, have no notion of vice and virtue, but can enjoy pleasure and pain.

Knowledge of the external is not indispensable to constitute a body. Trees, shrubs, climbers, annuals, trees with invisible

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1. Aph. 53. 2. Shanti Parva. 184. 16. 3. V. 2. 7.

flowers, grasses, creepers, etc., *which have internal consciousness are also sites of experience and experiencer*, as in the former case. The Legal Institutes emphasize the same, viz., that vegetables have life and consciousness, though they are not moral agents.[1]

Then Udayana in his Prithvi Nirupana remarks that trees, indeed, the whole vegetable kingdom, show the phenomena of life-death, sleep, waking, disease, drugging, *transmission of specific characters by means of movement towards what is favourable and away from what is unfavourable like the known living beings.* The same Udayana notes that plants have a latent or dormant consciousness which is extremely dull.

Similarly, one Chakrapani observes in the Bhanumati that plants though supplied with consciousness and life enjoy only a darkened consciousness.

But the Manu Smriti contains the clearest logical statement of this principle in the following passage:—

These[1] plants which are surrounded by multiform darkness which is the result of their acts in former existences, *possess internal consciousness, and experience pleasure and pain.* The various conditions in this constantly changing circle of births and deaths to which created beings are subject, are stated to begin with that of Brahman, and to end with these plants.

Upaskara in his commentary on Kanada Sutras mentions how trees show all the phenomena of life.[2] Trees and the like also are no doubt so many kinds of bodies, being the seat of experience (i. e., the field wherein particular souls reap the consequences of their acts in previous births). For without the characteristic of being the seat of experlence, life, death, sleep, waking, use of medicine, propagation of the seed, *approaching the agreeable. avoiding the disagreeable, etc.* would be impossible. Growth and the healing-up of wounds and fractures, which prove experience, are manifest in them.

It is said in the Brihat-Sanhita [3] that trees are attacked with the yellowness of their leaves by the action of cold, wind

1. V. 121-2.

2. Chap I, 49-50, 56; of. III. 10. 18-19 of Shrimad Bhagawata.

3. IV. 2. 5. Cf. Nyaya, III. 2. 40.

and heat. New plants die, and old trees dry up. The cure of this disease is effected by lopping the bark of the affected part, and watering the roots of the tree with water, butter and milk.

The most famous physician Charaka refers to the three sexes in trees and plants.[3]

4. NERVOUS SYSTEM IN PLANTS

The existence of a nervous system and the phenomena of life and consciousness in trees have been most clearly described in the Shanti Parva of the Mahabharata. Bharadwaja expressed his doubt to Saint Bhrigu on the point that trees have no signs of life nor are they composed of the five elements. It was said that plants have neither heat nor motion, they can neither see nor hear, they have no perception of touch, taste and smell, hence they could not be called living beings. Bhrigu dispels the doubt of his pupil by teaching him that plants show all the functions of life. All the sorts of created things have four kinds of birth. They are vivaparous, oviparous, vegetables and those born of filth. Trees sicken and dry up. This indicates that they have perception of *touch.* By sound of wind, fire and thunder, their fruits and flowers fall down. Sound is preceived through the ear. *Trees have, therefore, ears and do hear.* A creeper entwines a tree all around. A blind thing cannot see its way. Therefore it is evident that *trees have vision.* Again trees regain vigour and put forth flowers through good and bad smells and various kinds of fumigations. It is evident that trees have the sense of scent. They draw water by their roots and catch all sorts of diseases which can be cured by various medical operations. From this it is clear that *trees have perception of taste.* They are subject to pleasure and pain, and grow when cut or lopped off. These facts clearly prove that trees have life. They are not devoid of consciousness.[1] Fire and wind cause the water thus drawn up to be digested. A tree grows and becomes humid in proportion to the quantity of the food digested by it.

The senses of scent, touch, taste, vision and audibility are considered as the common attributes of both the rooted and loco-

1. S. B. H. Vol. 146 Chap. 55. 15. 2. Chap. 184.

motive organisms. The sensory organs can work only when some kind of a discriminating mind is at the back of all sensations, or the transmission of the nervous impulse through the sensitive vital activity. Sir J. C. Bose has now experimentally proved that the various specific characteristics of the nervous impulse in animals are also to be found in the plant nerve. [1] Is it not wonderful that some three millenniums before this exerimental age, numerous Hindu philosophers should have postulated the existence of the living impulse in plants, of the consciousness of pleasure and pain, and most of all, of a nervous system almost as fine and complex as in the locomotive beings ?

We cannot but admire the bold anticipations of Udayana and Upaskara who postulated that plants transmit specific characters by means of movement towards what is favourable and withdrawal from what is unfavourable like the known living beings. Now these statements have been experimentally proved to be literally true by Sir J. C. Bose. " Another important function is the transmission of a rapid message to the motor organ for quick reaction in avoding threatened danger. Large patches of ground in the tropics are covered by mimosa with their vivid green leaves; when one of the leaves is trampled upon or bitten by grazing cattle, a nervous impulse is sent throughout the plant, the leaves fall and press themselves against the ground, and the leaflets also become closed. Nothing could be more striking than the rapid change by which a patch of vivid green become transformed into thin lines of dull grey unnoticed against the dark ground. The plant thus saves itself literally by " lying low " and becoming invisible. "

5. SUMMARY

It has now been shown that according to Hindu philosophy vegetable forms are rooted or anchored animals. Recent discoveries have confirmed the conclusions of the ancient Indian seers.

The belief in the living nature of plants can be traced to the Rigveda, styled by Max Muller as the oldest work in the library of man. The Upanishads, Puranas, Sutras and Smrities have numerous passages to the same effeet, so that this conviction

1. Nervous Mechanism in Plants.

formed the most basic doctrine, nay, the very warp and woof of the web of the Indian philosophy of life.

The next stage of investigation characterised plants with consciousness and to some extent denied to them the possession of senses.

The third stage of research was crowned with the discovery that plants were endowed with a fine nervous system.

The theory of a continuous devolopment of a human soul from the lowest vegetable forms to the highest human beings, is a fundamental notion of these speculations. It implies a slow and laborious process, involving great tracts of time. The whole animate creation is straining for assuming better, higher, nobler forms. The ultimate perfection is never at hand, but the path to truth, beauty, progress and happiness is open to all. Man can make or mar his future. He can be hurled by his own deeds alone to the kingdoms of sub-human species or raised to the plane of the divine, but the message of hope is there that the ultimate goal of transcendent and resplendent divinity is within the reach of all.

APPENDIX II

HINDU IDEAS ON THE AGE OF THE WORLD

1. THE DURATION OF A KALPA

The Hindu books are full of references to Manus and Manvantaras for estimating cosmic chronology. One cycle of evolution and dissolution is represented as one day and one night of Brahma. Three hundred and sixty such nichthemerons make up His year, while one hundred such years form His life or one day of Purusha.

According to the Aditya Purana, the word Kalpa is derived from Kalpana which is composed of *Kal*, meaning the period of the existence of the species in the world, and *Prana*, meaning their destruction and disappearance. Thus the sum of the evolutionary and dissolutionary periods is a *Kalpa.*[1]

Hence one Kalpa is the period of the existence of the animate creation. Then follows the Kalpa of rest, death and inactivity. These two Kalpas, as said before, form a nichthemeron of Brahman.

According to Brahmagupta, a Kalpa commences with the vernal equinox on a Sunday with the conjunction of the planets, their apsides and nodes, which takes place there where there is neither Revati nor Asvini, *i. e.*, between them, at the beginning of the month Chaitra, and in the moment of the sun's rising over Lanka.

Thus the Kalpa is said to begin on the day when the seven planets come to be in conjunction on the same plane and in the line of apsides. In the geocentric astronomy of the Hindus, the Sun and the Moon along with Mars, Mercury, Jupiter, Venus, and Saturn were considered to be planets. The mean motions of each one of these planets were calculated and the day when all the seven luminaries were in the plane of the earth and in the line of apsides in the moment of the sun's rising over Ceylon. was taken to be the day of the beginning of the present Kalpa.

1. Alberuni's India, p. 368.

Duration of the evolutionary periods :—

Creation and dissolution follow each other like days and nights through all eternity. The activity of each Kalpa lasts for 1,000 Chatur Yugas—Major Ages, and each such age consists of four minor Yugas or Ages called:—

1. Krita	Age, consisting of	4 n		Here n is equal to 432,000 human years or 1200 divine years.
2. Treta	,, ,, ,,	3 n		
3. Dwapara	,, ,, ,,	2 n		
4. Kali	,, ,, ,,	1 n		
One Major Age	,, ,,	10 n		

Hence, one Major Age consists of 4,320,000 human years. [1]

But a Kalpa-Brahma's Day or period of evolution, having 1,000 such Major Ages is also divided into fourteen Manvantaras or Periods of Manu. In other words, the length of a Kalpa is 4,320,000,000 or four billions and three hundred and twenty millions of human years, but the period of one Manu is roughly equal to 71·4 Major Ages. According to Hindu Shastras, the seventh Manvantara and the 28th Major Age of this Manvantara is passing now; so that in accordance with this calculation 1,960,853,029 years have up to this time passed since the last cycle of cosmic evolution. On the basis of this calculation it was 1,960,853,026 years before our time that the cosmic evolution was set in motion. The world has still to run its course for 2,039,146,974 years more of the present Kalpa.

The whole calculation is based upon astronomical data, though the schools differed as to the duration of the Evolutionary Period. Aryabhatta and Pulisa did not agree with Brahmagupta. They conceived a Kalpa to consist of 1,008 Chaturyugas or Major Ages instead of 1,000 taken by Brahmagupta. Hence, according to Aryabhatta the total number of human years in a Kalpa amounts to 1008 × 4,320,000 = 4,354,560,000. These scholars were not content with the reckoning of years, but even calculated the number of days—lunar, solar and civil contained in one Major Age. These differ as under:—

1. Manu. I. 69-73; Sh. P. 231. 11-.30; Mark. P. Eng Trans. P. 227; Vishnu P. Eng, Trans. P. 435.

NO. OF CIVIL DAYS IN A CHATURYUGA:—

Brahmagupta—1577,916,450 civil days.
Aryabhatta —1577,917,500 ,, ,,
Pulisa —1577,918,100 ,, ,,

No. of *civil days in one Kalpa* according to the three astronomers:—

Brahmagupta—1577,916,450,000
Aryabhatta —1590,540,840,000
Pulisa —1590,541,142,400

2. THE AGE OF THE COSMOS

Even such a Kalpa is a drop in the ocean of time. 720 kalpas make one year of Brahma and one hundred Brahma years are equal to one day of Purusha, the Lord of the Universe. Thus the Lord's Day is composed of 72,000 kalpas. There are still greater chasms of time awaiting us in the age of the cosmos.

Day of Vishnu = 72,000 kalpas.
Year of Vishnu = 360 × 72,000 = 25,920,000 kalpas.
Life of Vishnu or One day of Mahadeva } = 2,592,000,000 kalpas.
Year of Mahadeva = 360 × 2592 million kalpas.
Life of Mahadeva or One day of Ishwara } = 93,312,000,000,000 kalpas.
One year of Ishwara = 360 × 93312 billion kalpas.
Life of Ishwara or One day of Sadashiva } = 3,359,232 trillion kalpas.
Life of Sadashiva or One day of Viranchana } = 120,932,352,000,000,000,000,000 kalpas.

Thus the life of the Universe is some multiple of 4320 million years × 120,932,352,000,000 billions.

The time that has elapsed since the beginning of the Brahma's life, was stated by Pulisa to be 6068 kalpas preceding the present Kalpa. Hence the total number of human years which have elapsed of the life of Brahma before the present Kalpa and during which period 3034 evolutionary cycles and 3034 periods of passivity have occurred in this solar system of ours, amounts to 26,423,470,080,000.

Therefore, up to the present year the age of the cosmos is about:—

2,642,347,008,000 + 1,961,000,000 = 26,425,431,080,000

Alberuni made a very apt remark on these seemingly outrageous numbers of those dreamers when he said that "God takes care that their trees do no grow into heaven."

But Alberuni had little idea that science would outbid the Hindus in calculating the life of the cosmos. Sir Oliver Lodge places the beginning of the formation of the nebulae two hundred million years before our time. The Hindu indulgence in bewildering numbers is of the same kind as that of the astronomer De Sitter who has estimated the circumference of the world at about 100 million light-years,—about ten times the possible distance from the earth to the farthest spiral nebula visible in the telescope. He also estimates the mass of the universe at about a quintillion quadrillions (10^{54}) of grams, and the number of electrons at a quintillion octillions [1] (10^{78}).

However strange it may appear, it is a fact that the Hindus have continued up to this day their cosmic calendar to keep a record of the age of the cosmos. Their estimate is not ridiculous and fallacious in the light of present-day scientific conclusions on the age of the world and that of our planet.

3. MODERN SPECULATION

The final word on the origin of our planetary system has not been uttered. "When geologists escaped from the shackles of the Mosaic cosmogony and the Assyrian Chronology, Hatton's dictum that *the earth indicated to him neither signs of a beginning nor* symptoms of an end—gained more adherents; and about three quarters of a century ago, the Uniformitarian School of which Sir Charles Lyell may be regarded as the prophet, began to command a majority among geologists, and its disciples showed a speculative disposition, as if they had an unlimited credit at the bank of time." From another quarter we hear that we have at present no means of estimating the pace of the march of evolution, and it is not surprising that geologists, impressed with the apparent slowness of present change and the number and variety of the forms which played their part on this earth's stage have

1. Arthur Haas-The New Physics, 1923.

felt disposed to demand almost illimitable time in order to bring the drama to the scene of which we are the spectators.

John W. Judd says that the results actually arrived at by different observers, for the period of time which has elapsed since the commencement of the Cambrian to the present day have varied from 70,000,000 years (Walcott) to 6,000,000,000 years (Mc Gee) (Students' Lyell). Raleigh declares *the age of the earth* to be "some small multiple of 1,000,000,000."

When there is such an immense divergence, an insurmountable gulf, in the conclusions of modern scientists on the age of the world, we need not brush away as a cobweb of fancy the Cosmic Calendar of the Hindus which has been handed over from generation to generation through several millenniums. The saints, seers, and sages of ancient India were endowed with a highly developed intuition through the practice of Yoga and therefore, many truths which we slowly see through the laborious inductive processes, were realized by them at a sweep. In short, though the cosmic age of the Hindus gives a rude shock to the beliefs of the followers of the Mosaic Cosmology, it is no longer oppossed to modern scientific research.

The following words of Haeckel cannot be lightly passed over:—

"In the same way as the distances between the different planetary systems are not calculated by miles but sirius-distances, so the organic history of the earth must not be calculated by thousands of years, but by palæontological or geological periods, each of which comprises many thousands of years, and perhaps millions, or even milliards, of thousands of years."

Further, our life is a single drop in the ocean of eternity. Before us and behind us lies eternity. [1]

4. ESTIMATE OF REEVES

The Indian estimates bear a significant comparison with the latest calculations compiled by J. Reeves [2] from the recent publications of physicists, astronomers, geologists, archaeologists and others. His data are presented in a tabular form:

1. History of Creation, vol. II, p. 336.
2. The World Story.

Nebular—Stellar Epoch-		Unknown time	
Solar- Planetary Epoch		"	
Birth of our Solar system	-	3,000,000,000	years ago ?
Pre-Cambrian Period --	-	1,600,000,000	to
"		660,000,000	years ago ?
Silurian, "	-	430,000,000	
Devonian "		390,000,000	
Permian "		340,000,000	
Eocene "		70,000,000	
Miocene "		40,000,000	

It is clear from these widely differing calculations that we are still in the cloudy regions of wild guesses. Hindu speculations on the topic deserve as much attention as any one of the modern estimates.

The Hindu estimates were often dubbed as cobwebs of the perverted or muddled imagination of speculative thinkers, but it now appears that they closely approach the latest conclusions of our physical sciences. The Hindu discovery of the Cosmic Era some three thousand years before our time must stagger the modern world. History and archaeology have given us many such surprises. Our admiration can be genuine when we remember how our modern biologists have groped in the dark for the discovery of the age of man, how their one estimate has been replaced by another more correct till Professor Thomson sounded the note that there is no use in haggling over a million years more or less, for indeed so complex an evolution as that of man should be more and not less intelligible if it be spread over several million years instead of a few tens of thousands.

Against the early estimates of 25,000; 250,000; 300,000 and even 2,000,C00 years, the present estimate of the birth of our solar system some three billion years back is an extraordinary leap. The Hindu philosophers have for ages stuck to their calculation. They too must have taken a long time to arrive at the estimates and then adhere to the one which has been handed down to us through several millenniums.

5. EVOLUTION AND DISSOLUTION

Many Hindu sages started the idea that evolution and devolution or dissociation are simultaneously going on and that

there are minor and major cycles of descending and ascending evolutions. On the other hand, Aryabhatta of Kusumapura or Patna, a pupil of the school of the Elder Aryabhatta, postulates that during the first half of a kalpa there is a progressive development of things, while the retrograde process of deterioration takes place in the second half of the Kalpa.[1] The Buddhist literature embodies the same ideas.[2]

We find an echo of the same thought in the latest discoveries of Bon:—

'During these accumulations of ages unknown to history the millions of stars with which space is peopled must have begun or ended cycles of evolution analogous to that now pursued by our globe. Worlds peopled like ours, covered with flourishing cities, filled with the marvels of science and arts, must have emerged from eternal night and returned thereto without leaving a trace behind them. The pole nebulas with shadowy forms represent perhaps the last vestiges of worlds about to vanish into nothing or to become the nuclei of a new universe.'

A modern poet has beautifully expressed the cyclic changes of disintegration and reintegration :—

There rolls the deep where grew the tree.
O earth, what changes hast thou seen !
There, where the long street roars, hath been
The stillness of the central sea.
The hills are shadows, and they flow
From form to form, and nothing stands :
They melt like mist, the solid lands ;
Like clouds they shape themselves and go.

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1. Alberuni's India. P. 371. 2. Budhism in Translations, P. 327.

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